

ROCK PRODUCTS

FEBRUARY
1944

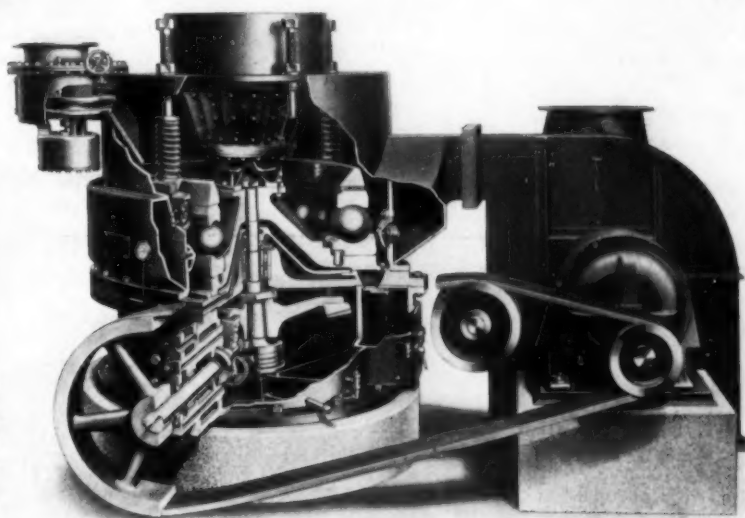
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COAL stands supreme as the economical fuel for firing cement kilns. About 85 per cent of the cement produced in this country is burned in kilns fired with pulverized coal; direct firing accounts for approximately 40 per cent of the total production.

In post-war days, there will unquestionably be a considerable increase in the use of direct firing equipment. For overall economy, and generally satisfactory performance, the B&W Type E Pulverizer is the logical choice for this purpose.

THE BABCOCK & WILCOX CO.
85 LIBERTY ST., NEW YORK 6, N. Y.

A FORWARD
LOOK



★
BUY
MORE
WAR
BONDS!
★

BABCOCK & WILCOX

FEB 28 1944

For Faster Production Plus Efficiency and Economy

AND

The Williams "Slugger" Crusher and Pulverizer



**CRUSHES AND
PULVERIZES
IN ONE OPERATION**

The "Slugger" is modern—the most up to date type of crushing equipment on the market today.

IN ONE OPERATION it is now possible to crush large pieces of stone weighing from 75 to 100 pounds to 1/4", 3/8" or agstone. As a result you save on costly sledging and the unnecessary expense of a primary crusher.

Here is maximum production at minimum cost. Every producer whether large or small can profitably install a Williams "Slugger". Seven sizes producing from 4 to 30 tons per hour.

Outstanding "Slugger" Features

- **HAMMER ADJUSTMENTS OVERCOME WEAR.** Discs are arranged so that the hammers can be set out as they wear on the end.
- **MANGANESE STEEL ADJUSTABLE BREAKER PLATE.** Adjustable towards the hammers.
- **ELECTRIC STEEL FRONT END.** The part which holds the breaker plate is electric steel casting—3 1/4 times stronger than cast iron.
- **COVER LINERS 1" THICK.** Manganese steel liners.
- **SIDE LINERS 1" THICK.** Manganese steel liners.
- **SEVEN SIZES.** 30 to 150 HP, stationary or portable models.

WILLIAMS PATENT CRUSHER & PULVERIZER CO.
800 ST. LOUIS AVE. ST. LOUIS, MO.



REG. U.S. PAT. OFF.

WILLIAMS
OLDEST AND LARGEST BUILDERS OF HAMMERMILLS IN THE WORLD
WILLIAMS
PATENT CRUSHERS GRINDERS SHREDDERS



Rubber like glass puts gloss on glue

A typical example of B. F. Goodrich improvement in rubber

GLUE is sold to industrial users by the barrel in clear, smooth flakes. To make it clear they used to pour a melted mixture onto glass plates, let it set, then break it off in flakes.

A manufacturer developed a faster, better process, pouring onto a moving rubber belt and slicing off with a moving knife—but the glue was always cloudy. The rubber wasn't smooth enough—and buyers regarded clearness as an indication of quality.

The manufacturer came to B. F. Goodrich. Could rubber be made with

a smooth, firm surface, more like the glass plates? The research men not only developed a rubber that left the glue as clear and glossy as before but designed a belt that stands the heat of the glue, has raised edges to keep it from running over and is so uniform in thickness that the knife can cut the glue without touching the belt. It made the new method of glue making a complete success.

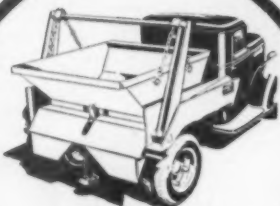
B. F. Goodrich research and development work is continuous, and product improvement is a permanent

policy. It applies to nearly every kind of rubber or flexible synthetic article used in war or peace. No product is regarded as finished or standardized or too small to bother with. So check with a B. F. Goodrich distributor before you buy. Don't decide any product you may be using is the best to be had until you've found out what B. F. Goodrich may have done in recent months to improve it. *The B. F. Goodrich Company, Industrial Products Division, Akron, O.*

B.F. Goodrich
RUBBER and SYNTHETIC products

Brooks LOAD LUGGER

Trade Mark Registered



The Odds are 10 to 2

Says a mid-west contractor: "Two of our trucks, mounted with LOAD LUGGERS, using five buckets each, do the work of ten ordinary trucks."

That's the story everywhere LOAD LUGGERS are utilized for material handling-jobs... conserving equipment, saving manpower, cutting maintenance, increasing profits.

Write for Catalog No. 44... and ask about the new TRUCK-KRANE Boom Attachment for the LOAD LUGGER.



For maximum truck efficiency:

Use 5 to 10 dump buckets with each LOAD LUGGER, depending on length of haul, number of men working and size of job.

Tilt-type, skip-type and special "bodies" (buckets) are available.

Distributors in Principal Cities

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KNOXVILLE, TENNESSEE

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TURNTABLE

(1) Double Center Drive Pinion which (2) applies power directly—fully concentrated on any one operation or (3) spreads power for high-speed simultaneous operations. (4) Two-piece swing drums designed to take the punishment of the hardest worked parts of the shovel. (5) Crowd clutch extra wide to deliver full digging power, mounted on roller bearings.

CRAWLER

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THE THEW SHOVEL COMPANY • Lorain, Ohio

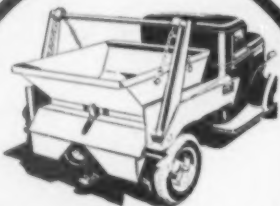
thew Lorain

SHOVELS

CRANES • DRAGLINES • MOTO-CRANES

Brooks LOAD LUGGER

Trade Mark Registered



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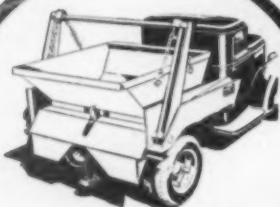
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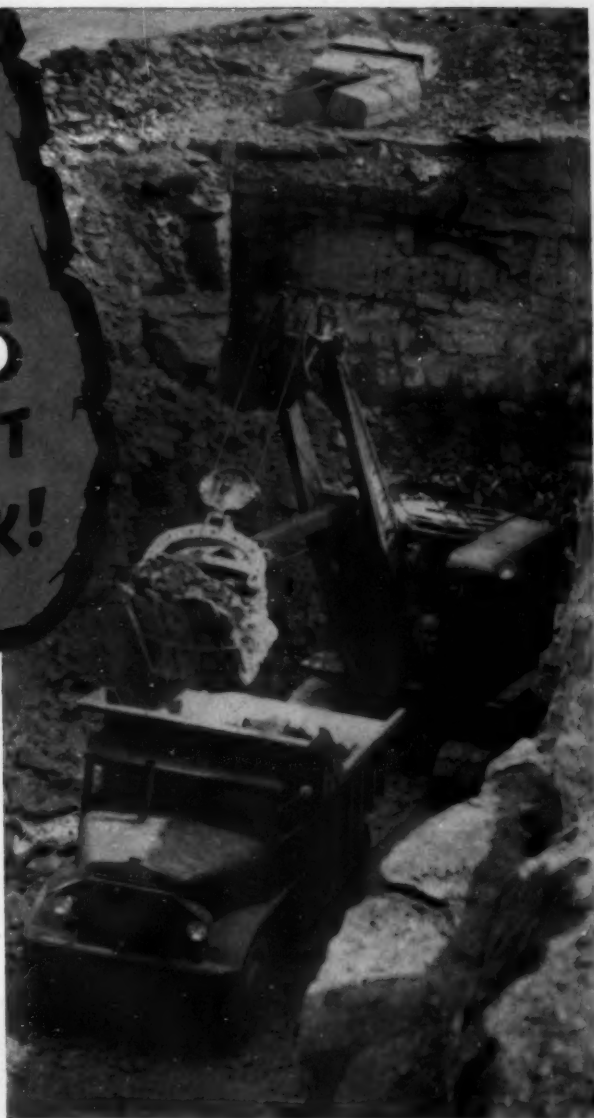
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thew Lorain

SHOVELS

CRANES • DRAGLINES • MOTO-CRANES

STARTS QUICK

BUDA *Low Pressure* DIESELS

The low pressure design of BUDA Diesel engines greatly eases the load on starting motors . . . unique combustion chamber, in BUDA Diesels, so thoroughly mixes the atomized fuel with the incoming air that this perfect combination furnishes complete combustion for quick, easy starting. This BUDA feature saves valuable starting time resulting in cash savings on every job.

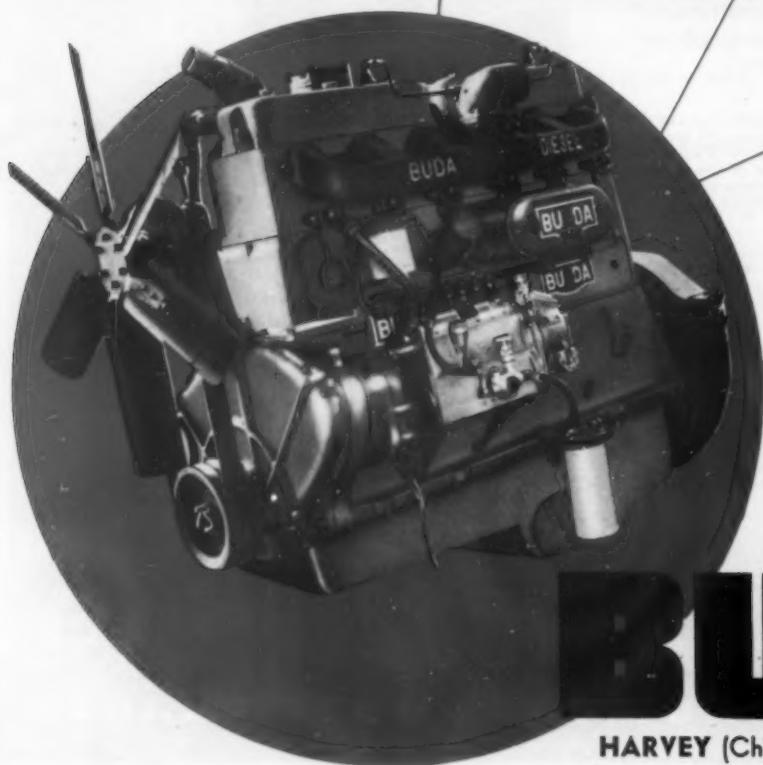
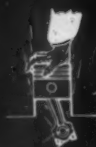


ORDINARY DIESELS

High cylinder pressures produce sledge hammer blows that punish pistons, rods and crankshaft every power stroke.

BUDA Low-Pressure DIESELS

Prolonged "low-pressure" combustion delivers a smooth, steady power stroke that cuts vibration, saves parts.



Remember . . .
• BUDA Powered means BETTER Powered—
Specify BUDA engines on the equipment you buy.



BUDA

HARVEY (Chicago Suburb) ILLINOIS

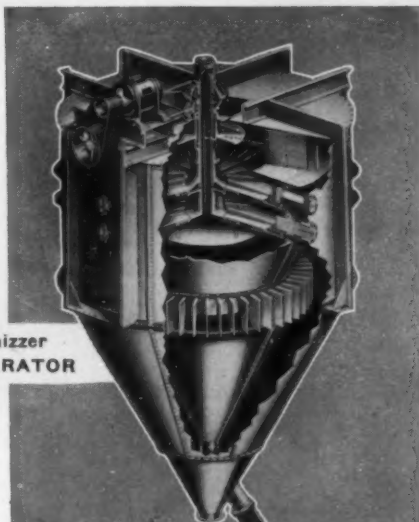
Boost Your '44 Mill Grinding Capacity

With the Whizzer Type

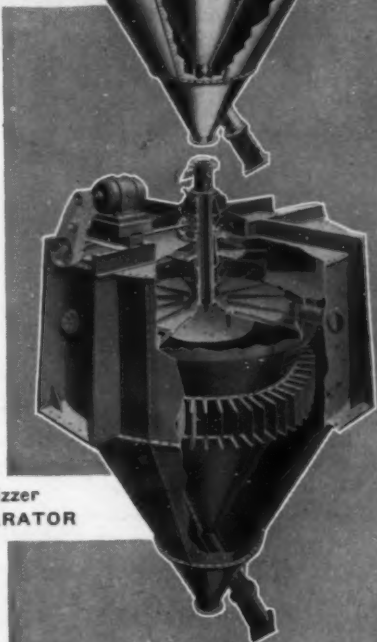
RAYMOND

MECHANICAL AIR SEPARATORS

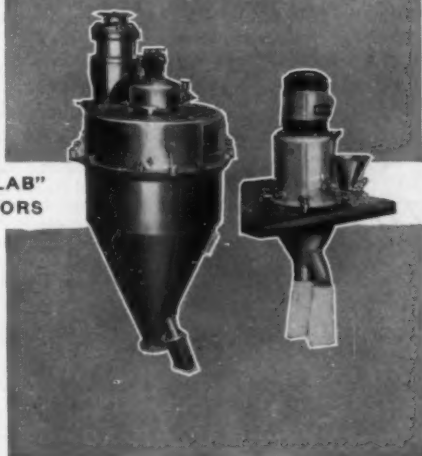
Double Whizzer
AIR SEPARATOR



Single Whizzer
AIR SEPARATOR



30" and "LAB"
SEPARATORS



This modern design classifier with the patented whizzer feature gives the extra efficiency you need for increasing production of today's high-specification materials. In closed circuit operations, it advances mill output from 25% to 75% or more.

BETTER PRODUCTS

The action of the revolving whizzer blades insures closer control of particle size with sharper selection of fines, cleaner tailings and more uniform finished materials.

EASIER CONTROL

Fineness can be regulated within wide limits by vertical slide dampers. In separating cement, for example, you can produce standard grades or high-early strength cements by the slide adjustments alone.

LOWER COSTS

For classifying gypsum, limestone, clays, graphite, slate dust, talc, silica, chemicals and manufactured products, you can obtain either the commercial grades or superfine materials with maximum economy when using the Raymond Separator.

RANGE OF SIZES: Built in eight sizes from 4 feet to 18 feet diameter; and also 30-inch unit and 10-inch Laboratory Separator.

Write for Raymond Separator Catalog No. 45 . . .
also Laboratory Bulletin
No. 53

RAYMOND PULVERIZER DIVISION

COMBUSTION ENGINEERING COMPANY, INC.

1307 North Branch Street

Chicago 22, Illinois

Sales Offices in Principal Cities

Canada: Combustion Engineering Corp., Ltd., Montreal



1,500,000 TONS
of aggregate for
huge dam project
furnished by . . .

TELSMITH

CRUSHING AND SCREENING PLANT

U. S. Army Engineers are building a huge dam in Tennessee. It will require 1,500,000 tons of aggregate—4 sizes of crushed rock: 3"-6", 1½"-3", ¾"-¾", minus ¾"; and one size of sand.

To produce this material, Ralph E. Mills Co., of Roanoke, Va., opened a quarry at the dam site. The rock is a high calcium limestone. TelSmith designed the complete crushing and screening plant, and furnished most of the equipment. Capacity is in excess of 200 tons per hour.

On war jobs, equipment as well as men must produce more and faster without "cracking" under the strain. For years TelSmith has been building equipment that

can turn it out, without taking time out. TelSmith complete sand and gravel and rock crushing plants are a known quantity to miners, contractors and aggregate producers.

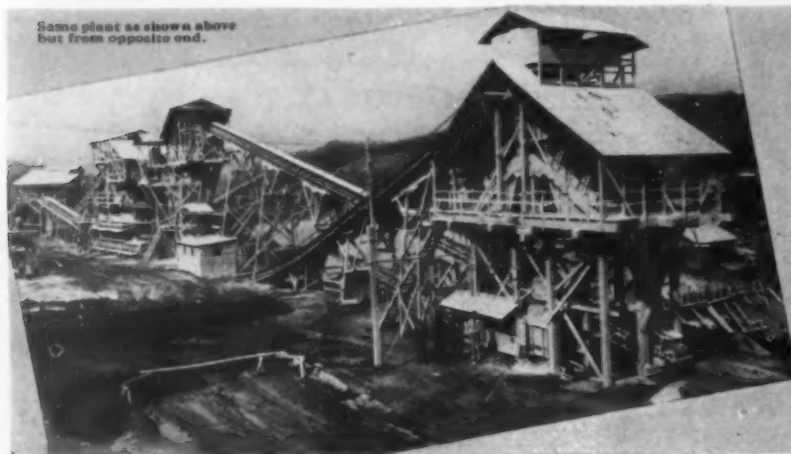
That's why TelSmith gets the call on so many war jobs—to build army and navy air bases, dry docks, roads, dams, and other big construction projects.

That's why your Uncle Sam is now taking most of the TelSmith equipment being built. It's going overseas, to build for the armed forces' needs.

You can get TelSmith equipment—for war work now—and after the war for all your needs. Get Bulletin Q-11 today.

SMITH ENGINEERING WORKS, 508 EAST CAPITOL DRIVE, MILWAUKEE, WISCONSIN

Cable Addresses: Sengworks, Milwaukee—Concrete, London
 Room 1604—50 East 42nd St. 211 W. Wacker Drive 713 Commercial Trust Bldg. 19-21 Charles St. G. F. Seely & Co. Mines Eng. & Ept. Co.
 New York 17, N.Y. Chicago 6, Ill. Philadelphia 2, Pa. Cambridge 41, Mass. Toronto, Ont. San Francisco 4—Los Angeles 14
 Brandeis M. & S. Co. Charleston Tractor & Ept. Corp. Roanoke Trac. & Ept. Co. Clift L. Priester Wilson-Weesner-Wilkinson Co.
 Louisville 8, Ky. Charleston 22, W. Va. Roanoke 7, Va. 911 S. 3rd St., Memphis, Tenn. Knoxville 8 and Nashville 6, Tenn.



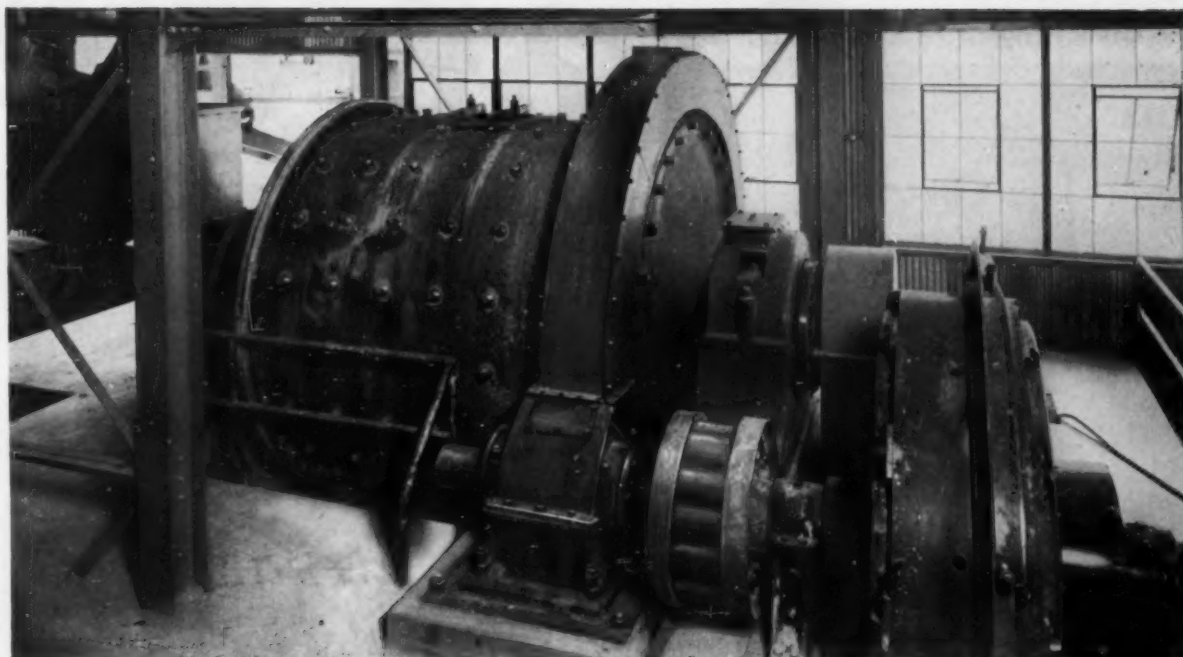
Same plant as shown above
but from opposite end.

TELSMITH Quarry Plant Equipment

- One 48" x 12' TelSmith Heavy-Duty Apron Feeder
- One 36" x 180' TelSmith Belt Conveyor
- One 48" x 7' TelSmith Plate Feeder
- One 36" x 182' TelSmith Belt Conveyor
- One 16-B TelSmith Primary Breaker
- One 24" x 78' TelSmith Belt Conveyor
- One 24" x 75' TelSmith Belt Conveyor
- One No. 48 TelSmith Gyrasphere Secondary Crusher
- One 36" x 131' TelSmith Belt Conveyor
- Two 4' x 12' TelSmith Double Deck Pulsator Screens
- Two 18" x 21' TelSmith Belt Conveyors
- Two 4' x 10' TelSmith Single Deck Pulsator Screens
- Twelve TelSmith Bin Gates
- Three 18" TelSmith Belt Conveyors
- One 18" x 105' TelSmith Belt Conveyor

TRAYLOR

GRINDING MILLS



WE BUILD

Rotary Kilns
Rotary Coolers
Rotary Dryers
Rotary Sifters
Scrubbers
Evaporators
Jaw Crushers
Gyratory Crushers
Reduction Crushers
Crushing Rolls
Grinding Mills
Ball Mills
Rod Mills
Tube Mills
Pug Mills
Wash Mills
Feeders
Rotary Screens
Elevators

WELDED!

The steel body or shell of this mill, like the shells of all Traylor Grinding Mills, whether of the $\frac{3}{8}$ " thickness of a wee 3'-0" x 3'-0" machine or of $1\frac{1}{4}$ " plate used for the mighty 8'-0" dia. x 50'-0" Compartment Mill, is in one piece. The original welding technique developed by us fuses the edges of the individual plates in such manner that the joints actually are stronger than the parent metal. This makes for the strength and thorough reliability of the whole machine that are invaluable to operators.

This shell construction is only one of the many mechanical features of Traylor Grinding Mills that single them out in the crowd—the building-in of ideas of our engineers, based on their intimate knowledge of the work to be done, knowledge gained by incessant observation and study. To investigate Traylor Grinding Mills is to install—to install is to enjoy big profits and permanent satisfaction. Consult us!

P. S.—The shells of Traylor Rotary Kilns, Coolers and Dryers are built like this, too!

Write for Bulletin 2103

TRAYLOR

ENGINEERING & MANUFACTURING CO.
MAIN OFFICE AND WORKS — ALLENTOWN, PENNA., U.S.A.

NEW YORK CITY
3416 Empire State Bldg.

CHICAGO
2051 One La Salle St. Bldg.

SALT LAKE CITY
101 West Second South St.

LOS ANGELES
919 Chester Williams Bldg.

SPOKANE
S. 2707 Rhyolite Rd.

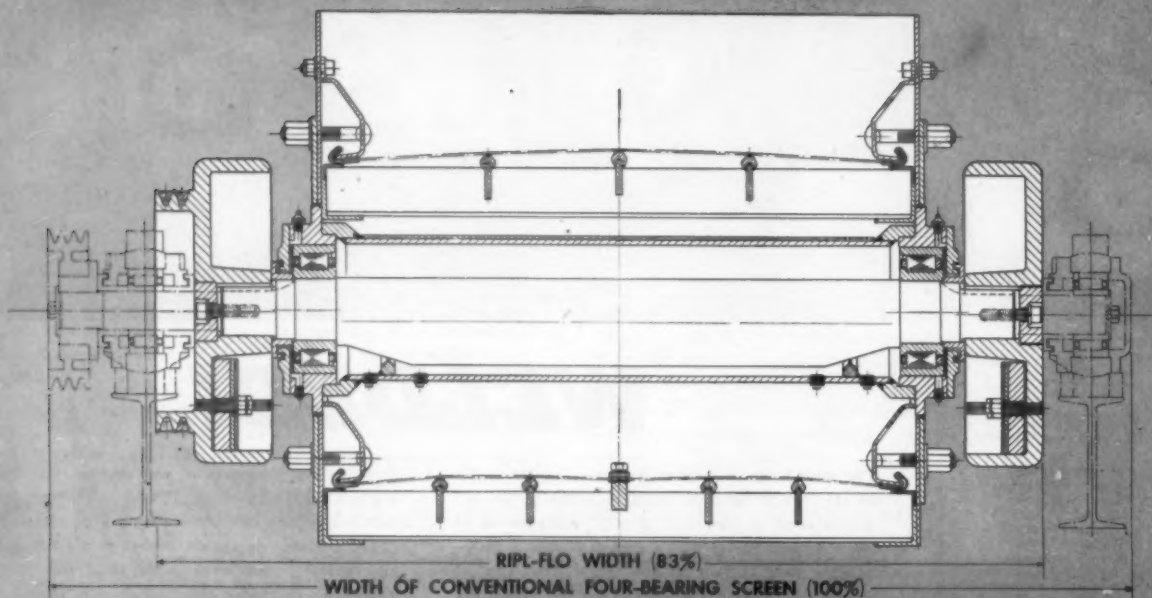
B. C. EQUIPMENT CO., LTD.
551 Howe St., Vancouver, B. C.

Export Department—104 Pearl St., New York City. Foreign Sales Agencies: London, Lima, Rio de Janeiro, Buenos Aires, Santiago, Antofagasta, Oruro, Montevideo

FEBRUARY, 1944

You Buy You Get

Great Equipment








THERE ARE FIVE THINGS you look for when you buy a screen: 1. Continuous service. 2. Efficient screening. 3. Minimum attention. 4. Rugged, simplified design. 5. Low initial cost. Allis-Chalmers Ripl-Flo Vibrating Screens (see

exterior view below) give you all five. New Ripl-Flo construction eliminates 2 outer bearings, yet it's warranted to perform the same, or better, screening job than 4-bearing screens. Width and weight reduced—you save on lower

initial cost and power consumption. Other advantages: Perfect circle throw; Patented integral counterbalance shaft; No stationary support frame; All welded parts stress-relieved; Uniform vibration. Write for bulletin B6151A.

*Only
Allis-Chalmers
Makes
a Complete Line
of this Equipment*

Jaw Crushers	Gyratory Crushers	Crushing Rolls	Pulverizers	G
				
All-steel primary and fine reduction. 1/4" to 12" product.	High-speed primary and secondary. 3" to 60" size feed.	6 different types. Reduction ratios from 5:1 to 10:1.	"Multi-impact" reduces non-abrasives to cubical shape.	30 ton service

One... Both!

2 Great Engineering Cooperation

HERE IS AN ACTUAL CASE OF Allis-Chalmers Cooperative Engineering in action —

One of our customers, a large southern aggregate producer is doing a top-rate job today supplying aggregate for construction work, airport runways, highways, etc. . . . and doing it at a good profit.

Not so three years ago. At that time they were fighting a serious screening condition in their process. Elongated particles were clogging the screen . . . *impairing product quality* . . . raising maintenance costs.



In desperation the operators decided to call on outside help. Allis-Chalmers engineers came in and after making a thorough analysis of the entire production process . . . recommended a type of screen which *by its inherent design* would solve

the screening problem. A double-deck, 4 by 10 ft. Ripl-Flo Vibrating Screen was installed.



Results: today after three years of operation, *not a single major repair* has had to be made . . . the blinding problem has been *totally* eliminated.

That's not all. The customer was so well satisfied with his installation that just recently he ordered two identical Ripl-Flo Vibrating Screens!

The next time *you* have a processing problem or need new equipment, call on Allis-Chalmers Cooperative Engineering.

Working directly with your own staff, our engineers put their broad experience at your disposal. For



complete information call our nearest district office. Or write direct to ALLIS-CHALMERS MFG. CO., MILWAUKEE 1, WISCONSIN.

A 1691A

ALLIS-CHALMERS



Grinding Mills

Pyro-Processing

Vibrating Screens

Motors & Drives

Centrifugal Pumps

duces non-
al shape.

30 types — over 3600 in service on every material.

Kilns, coolers, dryers, roasters, engineered in all types.

Efficient separation and dewatering — 8 different types.

Unbeatable team—Lo Maintenance Motor & Texrope V belts.

Largest line, highest efficiencies — built with motors.

FEBRUARY, 1944



"But You've Got To Drill For It!"

Thirsty work—plowing across blazing desert—slogging through murky jungle—crouching in the rubble of blasted towns.

Wherever they are, our soldiers get plenty of fresh water to drink. When it isn't in sight or when what's in sight may not be safe—you've got to drill for it, deep underground.

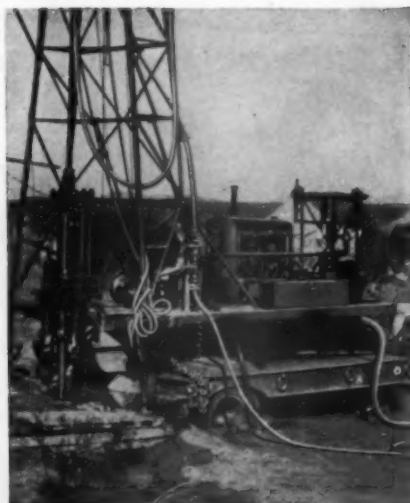
With the Army on the move, maintaining an ample water supply, sometimes under fire, means drilling fast, whipping away to another sector, drilling again. A tough problem in equipment, that! But it's been licked—rubber helped.

The George E. Failing Supply Company of Enid, Oklahoma, in conjunction with the U. S. Army Corps of Engineers, designed the needed high-speed, portable drilling rig. Working with them, United States Rubber Company provided various types of special hose—rugged enough for this rough, tough service but extra lightweight to keep pounds at a minimum.

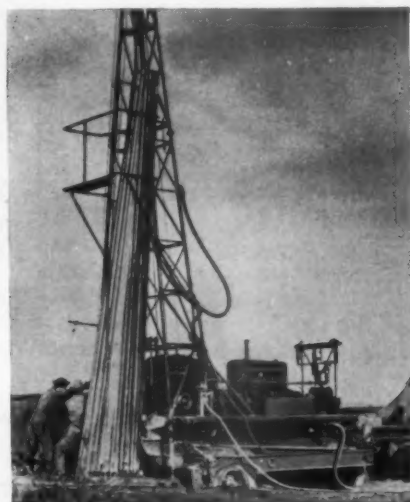
1230 Sixth Avenue • Rockefeller Center • New York 20, N. Y.



UNITED STATES RUBBER COMPANY



THE HIGH-SPEED, PORTABLE DRILLING RIG is moved right up to the front lines by combat troops. The extremely flexible United States Rubber Company hose with which it is equipped is not only very strong but so much lighter weight than commercial hose made for similar purposes that there is a saving of several hundred pounds to be transported.



THE FIVE DISTINCT TYPES of United States Rubber Company hose supplied for the combat-zone drill rig are: high-pressure rotary hose; mud-suction hose, capable of being re-shaped if crushed; light, strong, wash-down water hose; high-pressure hose for hydraulic controls; oil suction hose for hydraulic system. These hose, as well as the special rubber valves, pistons and packings also supplied by the United States Rubber Company, are all specially designed to get water fast and to be tough for front line service.

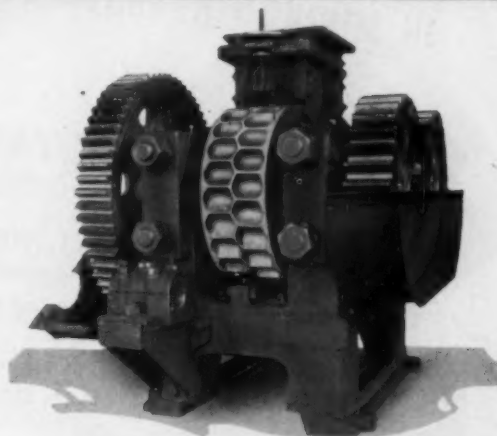
United States Rubber Company engineers have aided many manufacturers in their problems of supplying articles of rubber for direct warfare use by the Armed Forces . . . as well as rubber equipment for plant production, safety and protection uses.

ANNOUNCING—Larger and More Complete Facilities for Briquetting Tests and Research

FOR more than a quarter of a century the Vulcan Iron Works has been a leading manufacturer of heavy-duty briquetting machinery—thereby successfully solving many difficult problems relating to the burning of low-grade fuels and the smelting of powdered or pulverized metalliferous materials.

Much of our success in this field has been due to adequate realization of the fact that different materials respond differently to variations in mixing and feeding, type of binder used if any, speed, pressure, temperature, etc. All recommendations and designs have, accordingly, been based upon careful preliminary laboratory tests which have proved uniformly accurate and dependable.

For large undertakings, however, laboratory tests are not entirely conclusive and we take pleasure in announcing that enlarged facilities now permit us to conduct briquetting tests and research on a much larger scale—approximating commercial practice. Inquiries regarding such tests are cordially invited and will receive the personal attention of our experienced metallurgical engineers.



Shop view of Vulcan Heavy-Duty Double-Roll Briquetting Machine for zinc smelter. Gear guards and other accessories not yet installed.



Shop view of Vulcan "Muller" for mixing coal or coke and a suitable type of binder, with pulverized zinc ore prior to smelting. 12-ft. diam. pan and complete dust-proof casing not yet installed.

VULCAN IRON WORKS

Established 1849

Main Office and Works **WILKES-BARRE, PA.**, New York Office 50 Church

Rotary Kilns, Coolers and Dryers
Rotary Retorts, Calciners, Etc.
Improved Vertical Lime Kilns
Automatic Quick-Lime Hydrators

Toothed, Double-Roll Crushers
High-Speed Hammer-Type Pulverizers
Ball, Rod and Tube Mills
Shaking-Chute and Chain Conveyors

Heavy-Duty Electric Hoists
Self-Contained Electric Hoists
Scraper-Loading Hoists
Cast-Steel Sheaves and Gears

Steam Locomotives
Diesel and Gasoline Locomotives
Diesel-Electric Locomotives
Electric Locomotives and Larrys

Nitro Starch Base
High Explosive Efficiency
IN MINING • QUARRYING • LOGGING AND CONSTRUCTION

Plus **THREE ADVANTAGES FOR YOU!**



WILL NOT PRODUCE HEADACHES from handling...
reduces discomfort from breathing muck pile fumes.
Better working conditions for you and your men!



WILL NOT FREEZE or leak at Arctic or Tropic temperatures. Maintained high efficiency... anywhere anytime!



WITHSTANDS IMPACT in high-powered Rifle Bullet Test.
Greater safety for workers!

Today Trojan Products are helping our armed forces win through to Victory. We are proud to place our products at the disposal of our fighting men, with the fervent hope that they may help shorten the war... if only by a single day... so that we may once more utilize all our resources for *building* rather than *destroying*... so that we may serve America, and you, in the peacetime world "around the corner".

HELP SPEED THE PEACE... KEEP BUYING WAR BONDS



POWDER COMPANY

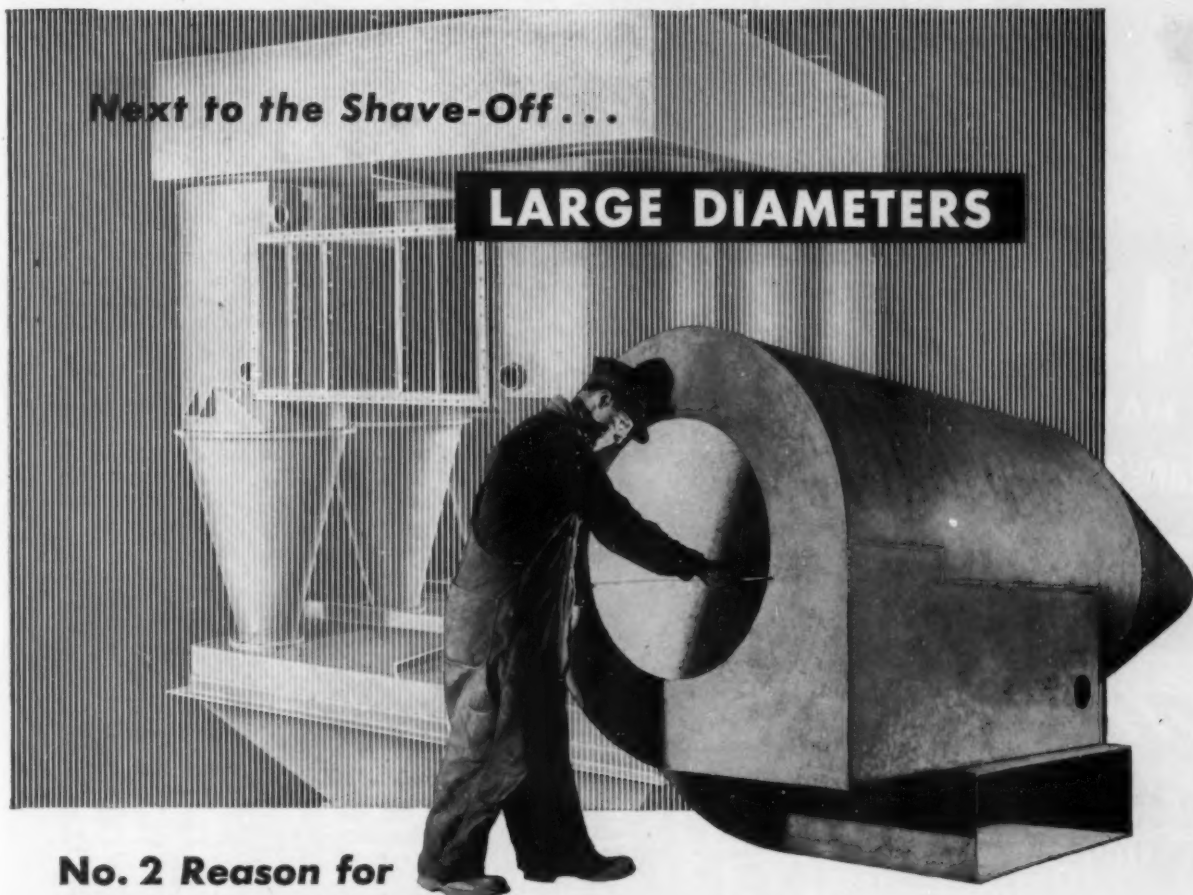
ONE OF AMERICA'S OLDEST HIGH EXPLOSIVES MANUFACTURERS

PLANTS: SEIPLE, PA. • ROBERT, CAL. • MAGAZINES STRATEGICALLY LOCATED THROUGHOUT THE NATION

OFFICES: ALLENTOWN, PA. • SAN FRANCISCO, CAL. • LOS ANGELES, CAL. • PORTLAND, ORE. • NEW YORK, N. Y.

Next to the Shave-Off...

LARGE DIAMETERS



No. 2 Reason for Buell's High Efficiency, Low Maintenance, Long Life

Because of Buell's exclusive feature—the patented van Tongeren "shave-off"—the cyclones in Buell Dust Recovery Systems do not have to be made with small diameters in order to achieve high recovery efficiency. *On the contrary, diameters of Buell cyclones can be in excess of four feet without loss in efficiency.

These large diameters make possible operation with low centrifugal force and consequent reduction in abrasive wear; and permit construction of extra-thick steel, with large dust outlets, that makes clogging virtually impossible.

All these are prime factors in the trouble-free operation, low maintenance cost, and high efficiency of Buell Dust Recovery Systems—as established from actual records of installations in service for three, four, five or more years.

**Engineers will find convincing proof of this in Buell's factual, 28-page book: "The van Tongeren System of Industrial Dust Recovery." To obtain a copy, simply write requesting Bulletin G-842.*

BUELL ENGINEERING COMPANY, INC.
Suite 5000, 2 Cedar Street, New York 5, N. Y.
Sales Representatives in Principal Cities



BUELL FEATURES	RESULT IN	PRODUCE
SHAVE-OFF	HIGH COLLECTION	GREATER RECOVERY
LARGE DIAMETERS	EFFICIENCY	LOW MAINTENANCE
EXTRA-THICK METAL	LESS FAN BLADE WEAR	LOW OPERATING
LARGE OUTLETS	LOW DRAFT LOSS	COST
INNER WELDS	LOW POWER	LONG LIFE
GROUND SMOOTH	CONSUMPTION	NO CLOGGING
CORRECTLY DESIGNED	HIGH TEMPERATURE	
HOPPERS	RESISTANCE	
SPLIT-DUCT	UNLIMITED CAPACITY	
MANIFOLDS	NO MOVING PARTS	
	FREE DUST FLOW	

DESIGNED TO DO A JOB, NOT JUST TO MEET A "SPEC"

FEBRUARY, 1944

13

Available

FOR EARLY DELIVERY!

TISCO

HADFIELDS
Manganese Steel
CHAIN

All Types

FOR CONVEYORS,
ELEVATORS, DRIVES, ETC.

Fortunately, the serious delay in obtaining chain does not apply to the most durable and economical of all chains—TISCO Hadfield's Manganese Steel Chain. Orders are being filled with reasonable promptness.

These days, when stoppages and breakdowns are so costly, emphasize the much longer wear of TISCO Manganese Steel Chain under conditions of grit, abrasion, heavy load and impact. In fact, under these conditions, Hadfield's Manganese Steel

actually becomes harder, more wear-resistant during operation. To insure a sound, uniform chain, each TISCO link, whether shipped knocked down or assembled, is tested under strains 50% greater than the recommended working load.

WHEN APPLYING for your CMP allotment, be sure to specify Hadfield's Manganese Steel, not just "alloy steel". Write today for full details covering this procedure.



UNDED 1742

Taylor-Wharton Iron and Steel Co.

HIGH BRIDGE, NEW JERSEY • EASTON, PENNSYLVANIA

FE

SHORTS STYMIED

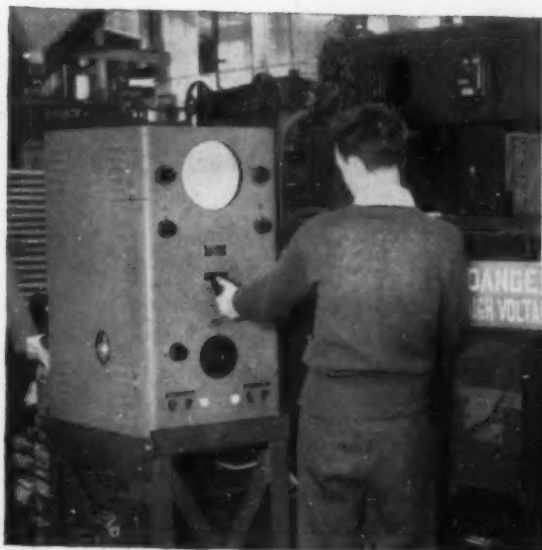
Voltage surges which accompany switching and frequent starting and stopping of motors impose high dielectric stresses on the coil insulation, and can cause harmful short circuits. Yet this is an unavoidable condition of service for many motors.

The grinder shown here, for example, starts and stops every time a finished part is removed and a new part inserted. But the two Tri-Clad motors that drive it have been built to withstand safely the voltage surges ordinarily encountered in this type of service. Their ability to "stymie" shorts was proved by the new General Electric test described below.

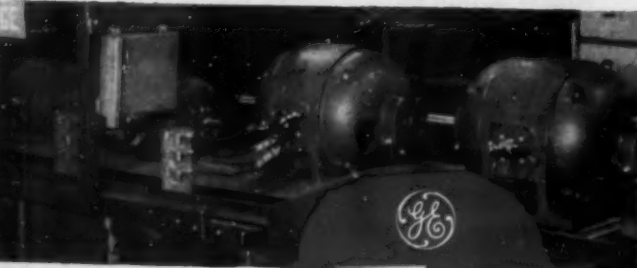


External grinder, equipped with two Tri-Clad motors, installed in the milk-machinery manufacturing plant of the Rite-Way Products Company, Chicago, Ill.

New high-potential, electronic surge-tester verifies strength of **TRI/CLAD** motor windings



This electronic test of insulation makes a "cardiogram" of every Tri-Clad motor winding, ferreting out weaknesses that might lead to shorts caused by voltage surges in service. It tests each turn, coil, and phase group of the windings for adequate insulation strength to withstand the "steep front" high-voltage surges of actual service. First developed and applied by G.E., it's one of the production tests which all Tri-Clad motors must pass as they come off our production lines. — General Electric Company, Schenectady, N. Y.



GENERAL  ELECTRIC

Each week 192,000 G-E employees purchase more than a million dollars' worth of War Bonds.

TRI/CLAD
MOTORS



The AIR ARM of INDUSTRY

Applying Compressed Air for countless jobs is one of Ingersoll-Rand's major contributions for the industries of war and peace.

Armies of drill runners mining the vital metals, building the strategic roads and air fields, driving the tunnels for highways, railroads and water—all with rock drills powered by Compressed Air.

Thousands of men, women too, building planes, ships, tanks, autos, trucks, locomotives, bridges, machines, and process plants—with drills, grinders,

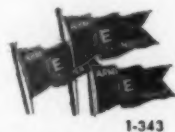
riveting hammers, chippers, hoists—powered by Compressed Air.

Today's war production also emphasizes the use of Compressed Air for propelling torpedoes, scavenging guns, starting Diesels, for painting, for ship salvage, for blasting sirens, for inflation of tires, for blowing blast furnaces and cupolas to increase steel production. . . .

Ingersoll-Rand has pioneered Compressed Air Systems since 1871, ever developing new and time-saving applications.

Ingersoll-Rand

11 Broadway, New York, N. Y.



1-343

COMPRESSORS • TURBO BLOWERS • ROCK DRILLS • AIR TOOLS • OIL AND GAS ENGINES • CONDENSERS • CENTRIFUGAL PUMPS

**PROCEED DOCTOR—
SUPERIOR DIESEL'S
ON THE JOB!**



Light failure in a hospital operating room can be disastrous. That is why many hospitals have their own generator plants.

Superior engines are picked for power jobs like this because their dependability and economy have been job-tested by institutions and industry the world over.

Superior **DIESELS**

STATIONARY . . . 31 to 1160 H. P.

MARINE 28 to 1160 H. P.

GENERATOR SETS . 12½ to 770 kw.

SUPERIOR ENGINES

Division of The National Supply Co.

Executive Offices: Pittsburgh, Pa.

Sales Offices: Springfield, Ohio; Boston, Mass.; New York, N. Y.; Philadelphia, Pa.; Washington, D. C.; Jacksonville, Fla.; Houston, Texas; Fort Worth, Texas; Tulsa, Oklahoma; Los Angeles, Calif.; Chicago, Ill. Factory: Springfield, Ohio.

AUTOMATIC, SUPERSENSITIVE DENSITY CONTROL



A new hydraulic classifier, the Dorrc Hydrosizer provides fully automatic control of a sensitivity never before approached in such a unit. It produces a more accurately sized and better concentrated series of sands, and has possibilities of application beyond the present scope of hydraulic classification.

New and unique design features are responsible for the superior performance of the new Hydrosizer . . . already proven by a number of installations. Supersensitive control equipment delivers a more uniformly graded product . . . and once set by the operator requires no further attention barring major changes in feed characteristics.

The Dorrc Hydrosizer represents the last word in hydraulic classification . . . applicable wherever 4 mesh or finer materials of varying specific gravities or particle sizes are to be graded. Check the advantages at the right—and for complete information write to our nearest office.

ADVANTAGES OF THE DORRC HYDROSIZER

1. **Simple Control**—changes in hydrostatic tube clearly visible—control equipment close by and easy to set.
2. **Fully Automatic**—no operating attention needed except where major changes in feed characteristics occur.
3. **More Accurate Sizing** due to elimination of lag in changing valve opening.
4. **Preliminary Sorting** by feed compartment preceding #1 pocket.
5. **Easy Cleanout** due to high pressure water connection beneath each constriction plate.
6. **No build-up of particles** on constriction plate is possible, due to new design.



THE DORR COMPANY, ENGINEERS

NEW YORK, N. Y. . . . 570 LEXINGTON AVE.
ATLANTA, GA. . . . WILLIAM-OLIVER BLDG.
TORONTO, ONT. . . . 80 RICHMOND ST. W.
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RESEARCH AND TESTING LABORATORIES
WESTPORT, CONN.

SUGAR PROCESSING

PETREE & DORR ENGINEERS, INC.
570 LEXINGTON AVE., NEW YORK

DORR

—RESEARCH—ENGINEERING—EQUIPMENT—

ADDRESS ALL INQUIRIES TO OUR NEAREST OFFICE

They practice what they preach

Here in the oil fields, operators talk and produce in terms of thousands of barrels. But when it comes to consumption of these vital stores of petroleum—then these same men are just like any "A" book holder down to his last coupon.

This vigilance against waste is not just a war expediency. It began long before the hooked cross spread its tentacles over the world . . . and its beginning was marked by the introduction of Cummins Diesel Power in the oil fields because it was found to be "Faster and Cheaper than Steam."

Today, in every major producing area, Cummins Dependable Diesels are in the forefront of the petroleum industry's fight to achieve maximum production with maximum economy . . . not only economy in the consumption of fuels and lubricants, but also economy of time, materials and manpower.

Here, truly, is a demonstration of conservation . . . here is an example of men in industry who *practice what they preach!*
CUMMINS ENGINE COMPANY, Columbus, Indiana.

This is the fourth in a series of advertisements depicting the war-time role of Cummins Diesel Power in the nation's basic industries. If you are operating Cummins Dependable Diesels, you can assure their most effective use by making doubly sure that they are maintained and serviced—regularly and efficiently. Ask your Cummins Dealer for details.



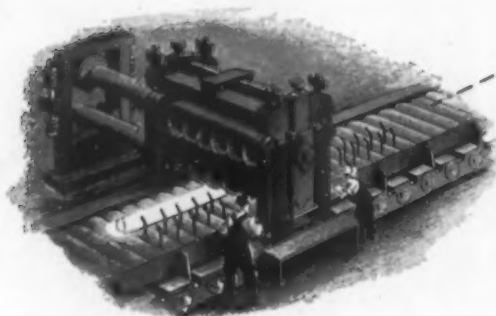
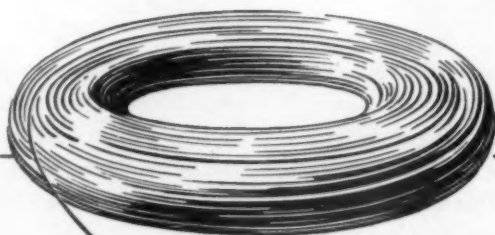
**CUMMINS
DIESELS**

SAVE THE THUNDER OF MODIFIABLE POWER
THROUGH HIGH SPEED DIESEL



Open hearths, blooming mills, rod and wire mills, all aimed in one direction...the production of specialized wire ...the best we can make...

ROEBLING "Blue Center" STEEL WIRE ROPE



WHAT can you expect from Roebling? Rope that has known capacity to deliver service. Engineering, in our plant and at your job, to put the rope to work right. Maintenance practices that protect its long life » » Your postwar profits and postwar jobs will depend in part on operating rope-rigged equipment at lowest cost. You can leave that part to Roebling.

JOHN A. ROEBLING'S SONS COMPANY
TRENTON 2, NEW JERSEY • Branches and Warehouses in Principal Cities



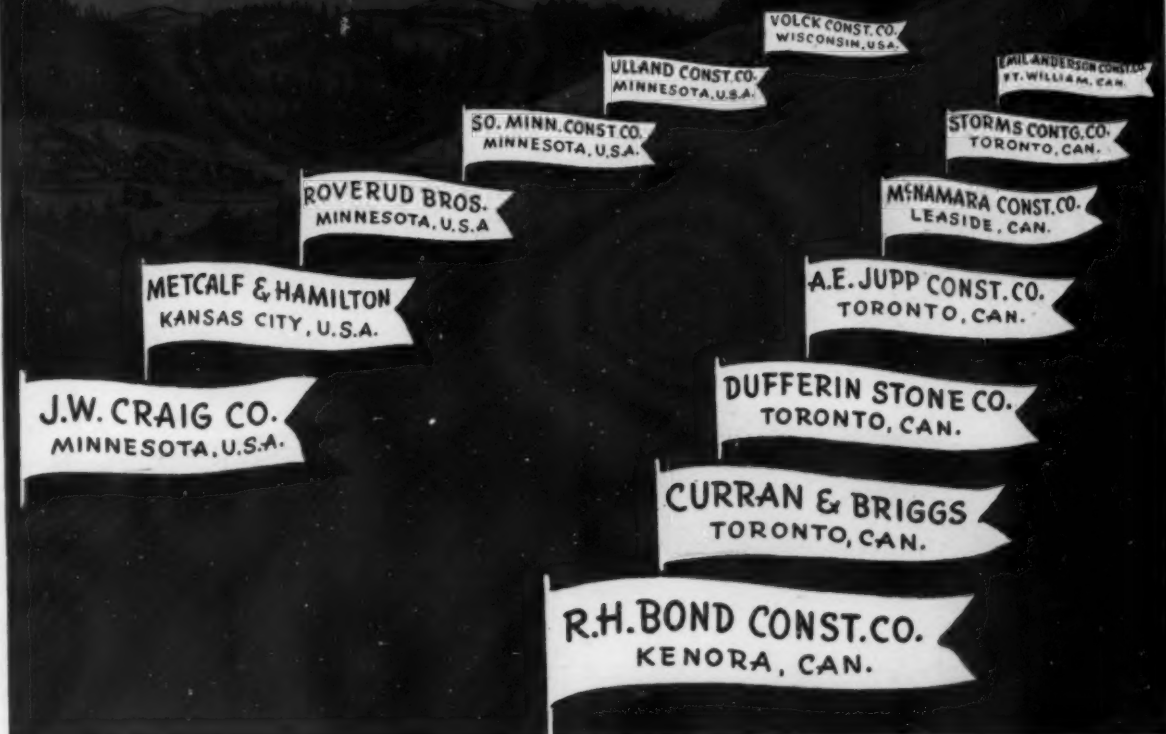
ROEBLING

PACEMAKER IN WIRE PRODUCTS

Wire Rope and Strand • Fittings • Cold Rolled Strip • Aircord, Swaged Terminals and Assemblies • Round and Shaped Wire Wire Cloth and Netting • High and Low Carbon Acid and Basic Open Hearth Steels Suspension Bridges and Cables • Electrical Wires and Cables • Aerial Wire Rope Systems

16 Pioneer Duplex Plants

from Dawson Creek to Fairbanks



● The Alaska Highway was a mighty job as the world knows, the toughest job since the Panama Canal. The equipment of many manufacturers, the experience and skill of many contractors went into the building of these 1,671 miles of road.

Pioneer plants—16 of them in the hands of thirteen contractors produced a tremendous tonnage of vital aggregate. These Pioneer Duplex plants, portable equipment that moved with the road, gave

dependable, continuous service in doing the complete job of crushing and screening the required product from the basic material available.

This preference by able contractors for Pioneer equipment indicates a high regard for Pioneer engineering and manufacture.

Pioneer

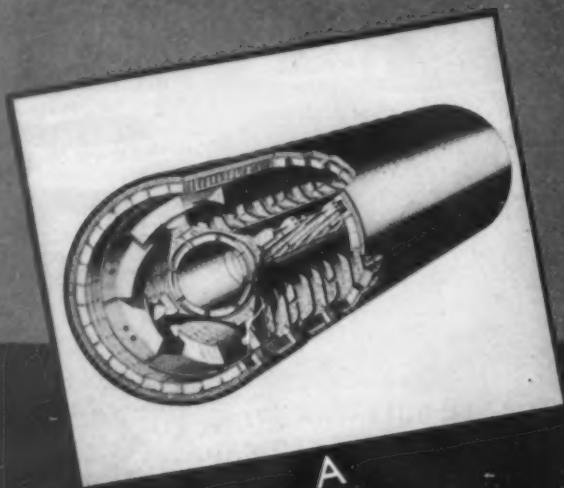
ENGINEERING WORKS

Jaw Crushers • Roll Crushers • Screens • Conveyors • Feeders • Washers

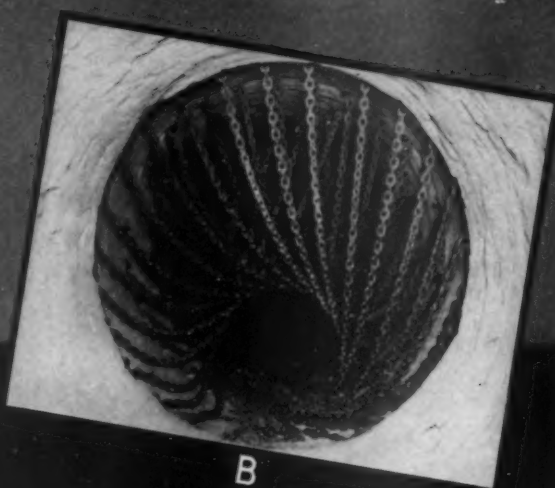
MINNEAPOLIS 13, MINNESOTA

ENGINEERS and
MANUFACTURERS of
QUARRY GRAVEL
AND
MINING MACHINERY

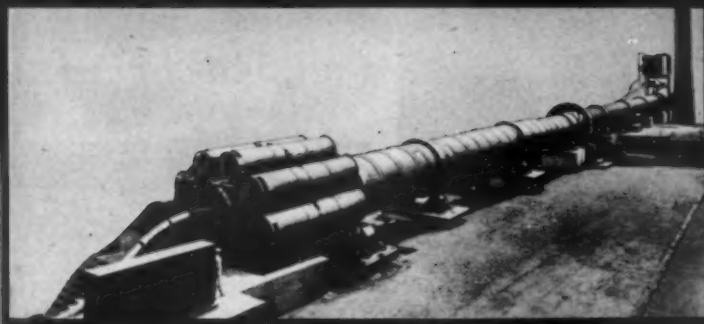
3 WAYS TO SAVE FUEL



A



B



C

A
Heat
Exchangers
for
Dry Kilns

B
Chain
Systems
for
Wet Kilns

C
Unex Cooler Integral
with Rotary Kiln

F. L. SMIDTH & CO.

60 EAST 42ND STREET

ENGINEERS AND
MACHINERY MANUFACTURERS

NEW YORK, N. Y.

STURTEVANT AIR SEPARATORS

★ Building things — laying ribbons of concrete—making jobs for America. That's the job Sturtevant Air Separators are taking part in—producing more efficiently at greater capacity, with less power consumption.

Plants equipped with Sturtevant Air Separators are equipped to meet the challenge of post-war production.



Write for latest bulletin and engineering information now!

STURTEVANT MILL CO.
Harrison, New York, U.S.A.

STURTEVANT

Air Separators • Ring Roll Mills • Jaw Crushers
Crushing Rolls • Jawing Sledge Mills
Moto-Vibro Screens • Rotary Fine Crushers

When Buckeye Clippers get back into "Civies"!



Most Buckeye Clippers are "in uniform"—those built before the war and owned by contractors, mines, quarries, clay pits and industrial plants are almost 100% in war work and all those built since the war have been requisitioned by Uncle Sam for use by our fighting forces, at home and abroad.

When Buckeye Clipper convertible shovels with their vacuum power control get back into "civies" they can materially lower your excavating and material handling costs, at the same time increasing your daily yardages. The way they are performing today, under severe handicaps, in all kinds of climates from 120° in the shade to 30° below zero, often at the hands of green operators and frequently enduring long periods without maintenance are indications of what they can do for you.

Look ahead—send for Buckeye Clipper Bulletin 543 which takes the Clipper apart and shows you step by step why it will be the outstanding buy among 1/2 and 3/4 yd. shovels.

They used to churn butter by hand!

But today most of it is churned in mechanical "barrels," with manual operations reduced to a minimum. A more sanitary product has resulted with obvious savings in man hours. MEVAC metered vacuum power control of all operations on the Buckeye Clipper outmodes tiresome tugging and pushing of levers in shovel operation.

BUCKEYE TRACTION DITCHER CO.

Findlay, Ohio



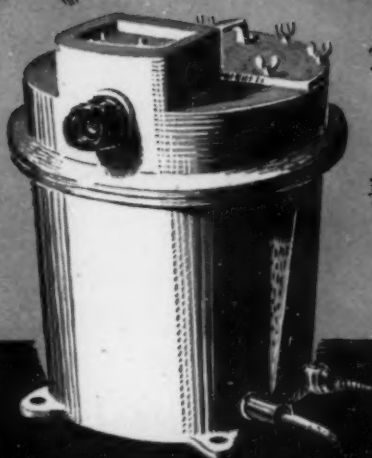
Buckeye✓

CONVERTIBLE SHOVELS, TRENCHERS AND BACKFILLERS, TRACTOR EQUIPMENT, R-B FINEGRADERS, ROAD WIDENERS AND SPREADERS



WORLD'S FASTEST CAMERA

Charts a Burst of Dynamite



TO CAPTURE pictures of explosives *in action*, Hercules scientists designed and built the world's fastest camera. Operating at exposures as fast as *one ten-millionth of a second*, this amazing instrument photographs dynamite at the very instant of its violent chemical change. Even powerful nitroglycerin's path of detonation, traveling at 250 miles a minute, is "stopped" on film by this shutterless, electrically operated camera.

This study of how explosives behave is only a small part of the intensive research being conducted daily by Hercules. Physicists, x-ray workers, microscopists, and other highly trained specialists are constantly searching for new and valuable knowledge on explosives which may prove helpful to you and your business.

-----HERCULES EXPLOSIVES-----

HERCULES POWDER COMPANY

INCORPORATED
946 King Street

Wilmington 99 Delaware

XR-40



PAPER...protecting vital wartime shipments

Foodstuffs and many other commodities vital to winning the War... and the Peace... must be packaged to withstand the toughest handling... exposure to salt water, the elements, gas, smoke and reek. Rugged kraft paper shipping sacks, were designed and custom-made by St. Regis to meet these problems.

Dirt, dust, vermin, moisture, find St. Regis Multiwall Bags impenetrable. Losses through

soilage, sifting, infestation, are practically eliminated. Developed in close co-operation with Army,* Navy,* and Lend-Lease authorities,* St. Regis Multiwall Paper Bags are delivering the goods to every front... at home and abroad... from Brooklyn to Burma. The finest industrial peacetime package has demonstrated its right to be recognized as the essential wartime package.

*To meet their container specifications.



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BATES VALVE BAG CO., LTD.
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Vancouver, B. C.

Boston, Mass.
Kansas City, Mo.
Franklin, Va.

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NEW YORK 17: 230 Park Ave. CHICAGO 1: 230 No. Michigan Ave.
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The CUSHION CLUTCH

...IS AN EXCLUSIVE NORTHWEST FEATURE. It reduces shock overloads on all parts under power when digging. It lengthens cable life and reduces the frequency of clutch adjustment. It's a feature that helps reduce shovel operation and maintenance costs.

NORTHWEST ENGINEERING CO.
1806 Steger Bldg., 28 E. Jackson Blvd., Chicago 4, Ill.

IF
YOU HAVE A
REAL ROCK SHOVEL
YOU'LL NEVER HAVE
TO WORRY ABOUT
OUTPUT IN
DIRT

CONVERTIBLE
for any Mining
Material Handling
or Excavation
Problem

NORTHWEST



**YOUR PEACETIME
AGGREGATE PLANT
is being tested in
New Guinea!**

Cedarapids

**Built by
IOWA**

YOU can't build "too good" for war! But there have been manufacturers who have thought there was a limit to quality requirements for peacetime service. That hasn't been the slant that Iowa Engineers have taken on the development of Cedarapids equipment, and, if it was not for the terrible phases of the picture, we would welcome the opportunity the war presents to test and learn about Iowa performance under war-time's terrific stress for the improvement of peacetime equipment.

Cedarapids equipment has met and is satisfying the problems of war. A plant a day rolls out of the great Iowa assembly bay to some battlefield. The enormous wartime effort, *unequalled in this specific field of production by any other manufacturer of similar equipment*, will give Iowa an experience that will mean aggregate producing equipment that will be ever more profitable for the American contractor.

Talk to contractors that are using Iowa aggregate and asphalt plants. Check the records that Iowa plants are establishing for production. Find out about Iowa's low operating and maintenance costs.

Whether it is crushers, screens, bins, asphalt plants, driers or washing plants, Iowa is Headquarters for aggregate reduction and handling equipment. Can we help you with your plans?

THE IOWA LINE

of Material Handling Equipment Includes

- | | |
|--------------------------------------|---------------------------|
| ROCK AND GRAVEL CRUSHERS | PORTABLE GRAVEL PLANTS |
| BELT CONVEYORS — STEEL BINS | REDUCTION CRUSHERS |
| BUCKET ELEVATORS | BATCH TYPE ASPHALT PLANTS |
| FEEDERS — TRAPS | DRAG SCRAPER TANKS |
| PORTABLE PLACER MACHINES | WASHING PLANTS |
| PORTABLE POWER CONVEYORS | TRACTOR-CRUSHER PLANTS |
| PORTABLE STONE PLANTS | STEEL TRUCKS AND TRAILERS |
| TRAVELING (ROAD MIX) PLANTS | KUBIT IMPACT BREAKERS |
| VIBRATOR AND REVOLVING SCREENS | |
| STRAIGHT LINE ROCK AND GRAVEL PLANTS | |

IOWA MANUFACTURING CO., Cedar Rapids, Iowa

*
Machines like this for applying Rip-Cord closures to cotton valve cement bags enable one operator to sew and bundle over 1000 bags an hour. The conveyor, synchronized with the sewing speed, carries bags through the machine and automatically stacks and counts them.



Bemis Rip-Cord Closure makes cotton cement bags go further

EXPERIENCE of cement manufacturers shows they get greater mileage from cotton bags after adopting the Bemis Rip-Cord Closure. In many cases the number of trips per bag has been increased from 8 to 12...an increase of 50% in the life of the bag.

Rip-Cord-closed bags deliver this extra service to cement manufacturers because neither closing nor opening damages the fabric.

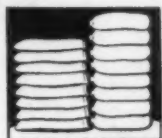
More trips per bag is only one of the economies of using the Rip-Cord Closure. The original cost of bags is less than when made for wire tie closing because bags can be made smaller and without hems. Efficiency in filling is stepped up. There are added savings in handling...in storage and shipping space. Mail the coupon today for complete details on the efficient, economical Bemis Rip-Cord Closure.



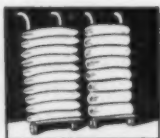
Saves Money! With Rip-Cord Closure bags can be made smaller and without hems and their life is increased, thus reducing costs.



Saves Bags! The Rip-Cord Closure is so easy to open—no tools are required and workmen never need damage bags to remove contents.



Saves Space! Bags closed with Rip-Cord are uniform in size and shape, saving shipping and storage space. Both stacks contain same amount.



Saves Time! More Rip-Cord closed bags can be put on a truck. This means fewer trips for workmen when loading, unloading, storing.

**Free Sample
AND LITERATURE**



Investigate the economy, added efficiency and sales advantages of the Bemis Rip-Cord Closure. A sample of the Rip-Cord Closure and descriptive folder will be sent promptly upon request.

BEMIS BAGS



BEMIS BRO. BAG CO.

OFFICES: Baltimore • Boston • Brooklyn • Buffalo • Charlotte
Chicago • Denver • Detroit • East Pittsburgh • Houston • Indianapolis
Kansas City • Los Angeles • Louisville • Memphis • Minneapolis
Mobile • New Orleans • New York City • Norfolk • Oklahoma City
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BETTER BAGS FOR 85 YEARS

MAIL THIS COUPON!

BEMIS BRO. BAG CO.
408-M Pine St., St. Louis 2, Mo.

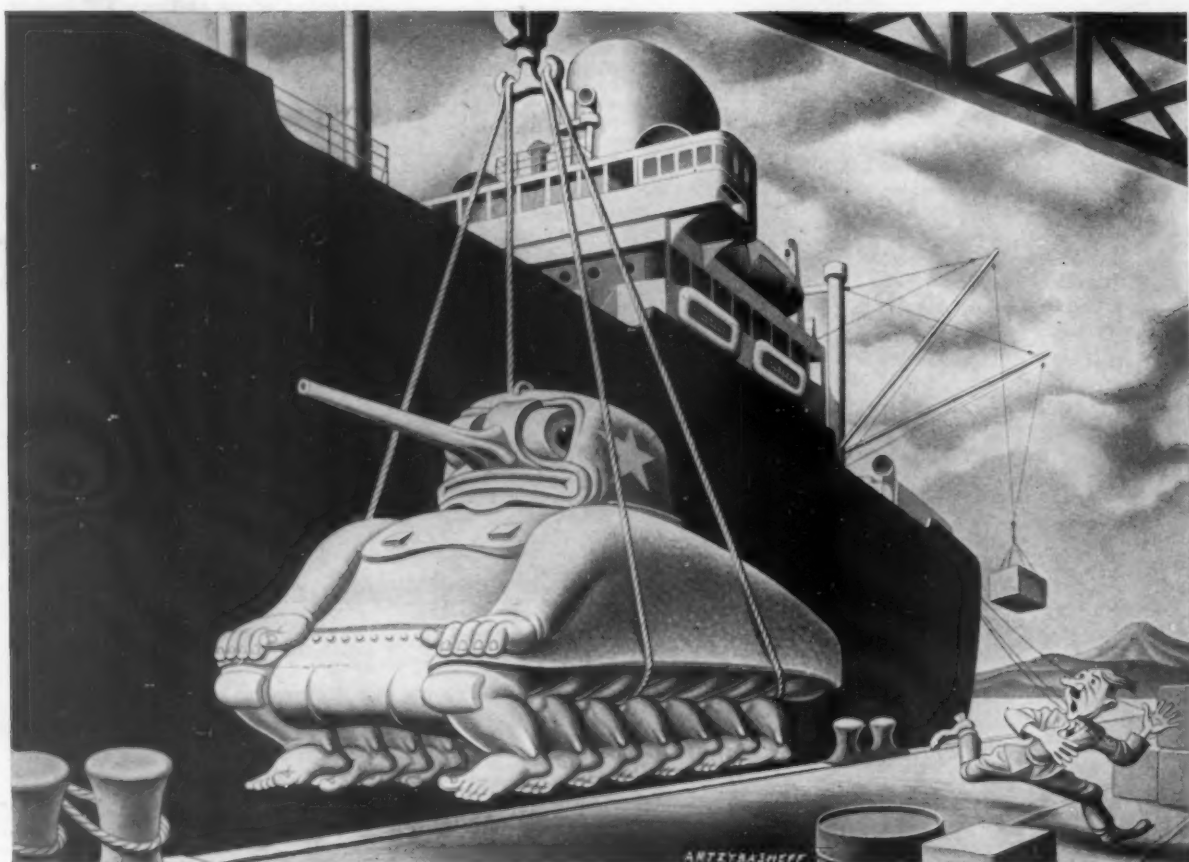
Please send literature describing the Bemis Rip-Cord Closure and a sample.

Name _____

Company _____

Street _____

City _____ State _____



Enlarged reproduction free on request

If this Tank could talk...

"Do you know this buddy of mine who's setting me ashore to start erasing Nazis? Let me tell you about him. I first learned what a stout, dependable friend Wickwire Rope is at the mine, where I was just red ore. Then he helped make some of my fine steel parts; and to build me . . . and dig wells for my fuel. In every industry, and on our Liberty Ships, you'll find friendly Wickwire Rope, serving silently and dependably. He'll be serving on the trip to Berlin, too."

For 122 years Wickwire Spencer has specialized in steel wire and wire products, pioneering many of the industry's important achievements. Wherever quality and service count, that name has won a reputation we aim to continue. Let Wickwire Spencer engineers help on *your* war production—and in your planning ahead.



WILL YOU HELP?

Every foot of famous WICKWIRE quality rope is needed to help in vital war production here at home, on the Victory Ships, and at the fronts. YOU can help by making the wire rope YOU use last longer.

FREE BOOK TELLS HOW

Its 82 pages contain:

78 pictures of right and wrong ways
41 wire rope life savers
20 diagrams, tables, graphs and charts

SEND FOR YOUR FREE COPY.

Send your wire rope questions to:



WICKWIRE SPENCER STEEL COMPANY

500 FIFTH AVENUE, NEW YORK 18, N. Y.

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Wickwire Spencer Steel Co.



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ARRESTS PROGRESSIVE WEAR

It is hard to conceive that contacting surfaces can be operated against each other and not cause wear. But tests prove this is not unusual when LUBRIPLATE Lubricants are used. This "Modern Lubricant" is more than top quality petroleum. It contains elements not found in any other oils or greases.

LUBRIPLATE maintains a wear-resisting, load-bearing film on shafts, bearings, gear teeth and other contacting moving machine parts. The destructive consequences of friction are therefore reduced to an unbelievable minimum. LUBRIPLATE protects machine parts against rust and corrosion. Its long life and stay-put properties make LUBRIPLATE very economical.

Don't take our word for the above statements. Let us send you data from scientific tests and case histories that prove that LUBRIPLATE arrests progressive wear. Write for a copy of "The LUBRIPLATE Film" written especially to serve your industry.

Rx

FOR YOUR MACHINERY

No. 3—Ideal for general oil type lubrication. Ring oiled bearings, wick feeds, sight feeds and bottle oilers.

No. 8—Because of its high film strength and long life reflects outstanding performance in most types of enclosed gears (speed reducers).

No. 107—One of the most popular grease type products for general application by pressure gun or cups.

No. 70—For a wide range of grease applications, especially at temperatures above 200 degrees F.

No. 130-AA—Known nationwide as the superior lubricant for open gears, heavy duty bearings, wire rope, etc.

BALL BEARING—This is the LUBRIPLATE lubricant that has achieved wide acclaim for use in the general run of ball and roller bearings operating at speeds to 5000 RPM and temperatures up to 300 degrees F.

LUBRIPLATE DIVISION

FISKE BROTHERS REFINING COMPANY

NEWARK, N. J.

SINCE 1870

TOLEDO, O.

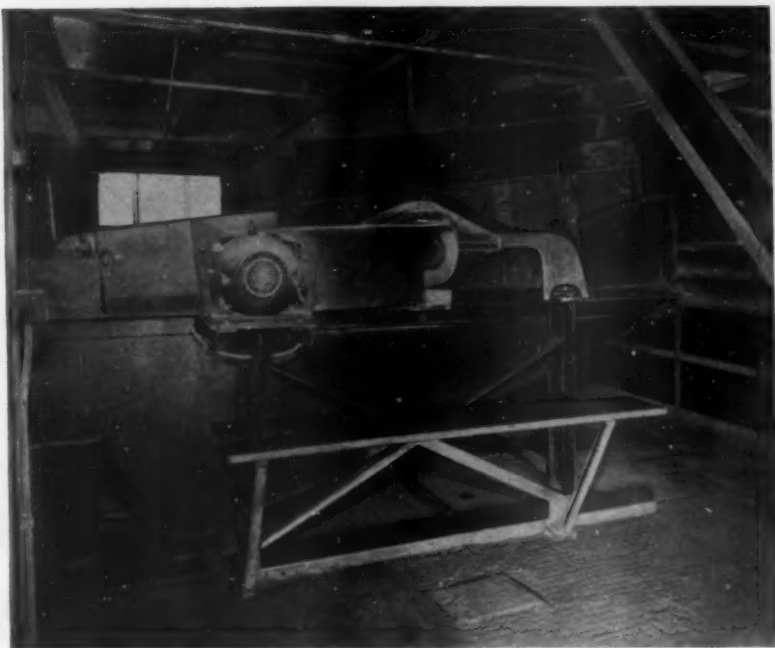
WRITE FOR THE NAME OF THE DEALER NEAR YOU

Robins Hydrex Liquid Screens...

Increase the Efficiency of Cement Plants

When Robins Hydrex Screens were put into operation in two cement plants, a number of benefits were received at once:

- 1 One entire operation was eliminated.
- 2 The cost of more expensive equipment was saved.
- 3 Control over size and amount of material was improved.
- 4 Reduction machines were enabled to operate at maximum efficiency.
- 5 The desired fineness of the slurry was maintained constantly.



The Hydrex Screens serve as balancing units between the crusher and the tube mill. Separating the slurry into fines and oversize, they pass the fines to the tube mill, the oversize (in enclosed circuit) going back for additional crushing.

One Hydrex alone is removing some 140 barrels an hour of -20 mesh slurry and returning about 210 barrels an hour of the oversize.

Full particulars about this application of Robins Hydrex Liquid Screens are yours for the asking.



Robins Hydrex Screens are part of a complete line of materials handling machinery for sand, gravel and cement plants. Descriptive bulletins available on request to Dept. RP-2.

ROBINS makes: BELT CONVEYORS • COAL AND ORE BRIDGES • BUCKET ELEVATORS • CAR AND BARGE HAULS • CAR DUMPERS • CAR RETARDERS • CASTINGS • CHUTES • CONVEYOR IDLERS AND PULLEYS • CRUSHERS • FEEDERS • POUNDRY SHAKEOUTS • GATES • GEARS • GRAB BUCKETS • PIVOTED BUCKET CONVEYORS • VIBRATING SCREENS • SCREEN CLOTH • SELF-UNLOADING BOAT MECHANISMS • SKIP HOISTS • STORAGE AND RECLAIMING MACHINES AND SYSTEMS • TAKEUPS • LOADING AND UNLOADING TOWERS • TRIPPERS • WEIGH LARRIES • WINCHES • WINDLASSES

ENGINEERS • MANUFACTURERS • ERECTORS

**ROBINS
CONVEYORS
INCORPORATED**
Founded in 1896 as Robins Conveying Belt Co.
PASSAIC • NEW JERSEY

FOR MATERIAL AID IN MATERIALS HANDLING

It's ROBINS

MATERIALS HANDLING MACHINERY

ROCK PRODUCTS

EDITOR ASSUMES NEW RESPONSIBILITIES

HAVING directed the editorial activities of **ROCK PRODUCTS** for over 26 years, the writer has decided at the age of 59 to devote his time and energies to the less strenuous job of serving this journal as "an elder statesman"; in other words, he has become an editorial feature writer and counsellor, without the responsibility of "putting **ROCK PRODUCTS** to bed" every month.



Nathan C. Rockwood

It has always been part of my philosophy in life that there is truth in the proverb, "Youth for action; age for counsel," so I am putting this philosophy into practice. The change is being made because I want to semi-retire while I still have many active years ahead.

Fortunately, I am able to leave the editorship in the hands of a much younger man, Bror Nordberg, whom I introduced to editorial work and trained, and who, I know will carry on in the best traditions of **ROCK PRODUCTS'** long and faithful service to this industry. Our objective has always been clear and simple: it is to serve this industry in every honorable way that we could conceive of to be *useful*.

The change involves no radical deviation from that part of the primary duties I have always had, of contacting as many of our readers as possible, and of stimulating the writing of helpful articles and discussions. Indeed, it is hoped that in relieving myself of many routine duties, I will have more time for visiting, discussing the problems of the industry, and the world itself maybe, with our many friends.

Mr. Nordberg, my successor, as responsible editor of this journal, needs no introduction by me, as he has been my assistant and associate for nine years and has already made many friends in the industry, who will be pleased to know of his progress.

While I do not intend to keep regular office hours, I shall always be available at the "old stand" and always ready to welcome visitors in the office that is being reserved for me. So, this is not "hall and farewell," but merely a notice that I shall be more readily available for visits and contacts than for several years.

I BELIEVE that this is one of the few times in 26 years that anyone but Mr. Rockwood has written for this page, and this opportunity therefore impresses upon me the responsibilities in assuming the editorship of **ROCK PRODUCTS**.



Bror Nordberg

I have been fortunate in having had the opportunity of serving my apprenticeship under Mr. Rockwood. He has taught me much about publishing, but more important, both of us being civil engineers, his guidance has enabled me to acquire knowledge of the industry in the field that would have been impossible otherwise. And I am grateful that he will continue to be available for consultation.

In assuming my new responsibilities as editor, I fully intend to continue the basic editorial policies that have been tradition with **ROCK PRODUCTS**. Mr. Rockwood has always stated that the publication's main objective is to be useful to its readers. The writer will maintain that purpose to the best of his ability.

We have all been going through a trying period that has sometimes taxed our industry's ingenuity to the utmost. The crisis has not yet been reached and, when it passes, new problems will confront us that may prove just as complicating as those we are in the midst of overcoming now. As it looks now, the post-war days are filled with uncertainties and dangers that will require the best in all of us to meet them.

We believe that business papers will have a particularly splendid opportunity to render invaluable service to their readers for the duration of the war and during the post-war era. **ROCK PRODUCTS'** editorial staff feels that it is an obligation of the publication to do its utmost in helping the industries it serves to re-establish themselves. **ROCK PRODUCTS** will continue with increased effort to bring you the most helpful articles that we can secure from the top engineers and authoritative writers available to our industries. The times are far from ordinary and we therefore will put more than ordinary effort into our jobs as editors.

Nathan C. Rockwood *Bror Nordberg*



**AFTER
2,000,000-LB.
SQUEEZE**

"TESTED to destruction," this 22" diameter concrete core withstood a pressure of 2 million pounds before giving way.

In your trucks, tractors, bulldozers, shovels, draglines, etc. bearing pressures are also high and require lubricants that will protect them. This is why contractors so definitely prefer *Texaco Marfak*.

Texaco Marfak provides ideal film lubrication inside a bearing, yet maintains its original consistency at the

outer edges...sealing itself in, sealing out sand, dirt, water. Its tough, adhesive film cushions chassis parts against road shocks. Makes parts last longer.

For wheel bearings, use *Texaco Marfak Heavy Duty*...it stays in the bearings—off the brakes. Seasonal repacking no longer required.

Texaco Lubrication Engineering Service is available to you through more than 2300 distributing points in the 48 States. The Texas Company, 135 E. 42nd St., New York 17, N. Y.

THEY PREFER TEXACO

- ★ More locomotives and railroad cars in the U. S. are lubricated with Texaco than with any other brand.
- ★ More revenue airline miles in the U. S. are flown with Texaco than with any other brand.
- ★ More buses, more bus lines and more bus-miles are lubricated with Texaco than with any other brand.
- ★ More stationary Diesel horsepower in the U. S. is lubricated with Texaco than with any other brand.
- ★ More Diesel horsepower on streamlined trains in the U. S. is lubricated with Texaco than with all other brands combined.



TEXACO MARFAK

TUNE IN FRED ALLEN EVERY SUNDAY NIGHT—CBS ★ HELP WIN THE WAR BY RETURNING EMPTY DRUMS PROMPTLY

Washington NEWS

Engineering Services

W.P.B. PART 1593: Provisions requiring authorization of engineering services, bids and estimates, and placement of purchase orders are removed from order L-193 (conveying machinery and mechanical power transmission equipment) as amended by the WPB. This equipment is now being scheduled under order M-293. Prospective purchasers are no longer required to file form WPB-1593 (formerly PD-681).

Corundum Shortage

W.P.B. PART 3286: General Preference Order M-89 has been ordered to provide that on or before the 5th day of each calendar month, each supplier of corundum ore or grain shall file with the W.P.B. in quadruplicate, Form WPB-2921, formerly PD-293; producers of corundum flour shall file similarly Form WPB-2922. Consumers of corundum grain shall file Form WPB-2933. Consumers desiring delivery of corundum grain shall file Form WPB-2923; superfine flours, shall file Form 2924.

Construction Machinery and Repair Parts

W.P.B. PART 1319: Limitation Order L-192 as amended on January 10, covers changes in procedure affecting procurement of new equipment as well as spare and repair parts. Applications for new equipment listed in Schedule A must be submitted on Form WPB-1319 in quintuplicate. The application is presented in the first instance to the regional office in which applicant intends to use equipment. If suitable used equipment is not available, the application will be forwarded by the regional office to the Construction Machinery and Equipment Division at Washington with a recommendation by the regional office.

For new equipment listed in Schedules B and D, the customary PD-1A applications should be submitted to the nearest district or regional WPB office which will forward its recommendations in the application to W.P.B. at Washington for final action. District offices may approve or deny applications for new equipment up to \$1,000 in value. Under schedule B certain items may be purchased as repair parts if they are being purchased to replace a similar item that is worn out. Such items can be charged against MRO purchased under CMP Reg. 5.

Under subparagraph (j) (1), pro-

ducers may not obtain repair parts for equipment listed in Schedules A and B without adding the following endorsement to their purchase orders: "Authorized under Order L-192." Under this subparagraph, "A purchaser must not certify that a part is needed for current maintenance unless he expects to use it to replace a worn out part within 30 days after receiving it." The certification involves a "representation to the WPB that the repair parts ordered are needed" for current maintenance and "that they will be required to replace worn out parts within 30 days after delivery, that the purchaser does not have parts on hand or on order for this purpose and that the purchaser has complied with the provisions of Limitation Order L-196." In the second paragraph under (j) (1) the exception to what is said above regarding procurement of repair parts is to be noted. If a purchase order covers repair parts for Schedule A equipment manufactured before January 1, 1930, it must be approved on Form WPB-1319. This limitation on the purchase of repair parts for equipment listed in Schedule A manufactured before January 1, 1930, does not "apply to the purchase of repair parts for current maintenance of dredges, shovels, cranes, or draglines, with a capacity of 2½ cu. yd. and larger," according to Executive Secretary V. P. Ahearn, National Sand and Gravel Association.

Buyer Must Furnish Preference Rating

W.P.B. PART 955: The following interpretation, January 5, 1944, has been issued by W.P.B. with respect to Priorities Reg. 7:

Paragraph (f) of Priorities Regulation No. 7, which permits a seller to waive the buyer's certification where he knows the facts, does not allow the seller to rate an order which the buyer has not attempted to rate. If the buyer has stated the rating on the order but has not certified it, the seller may add the appropriate certification; and if the buyer has not shown the rating on the order, but has otherwise informed the seller that he wishes to apply or extend the rating, the seller may also insert it on the order.

Better Car Utilization

OFFICE OF DEFENSE TRANSPORTATION is still counting on voluntary cooperation of the railroads and the ship-

pers and receivers of freight to offset shortages of railroad manpower and equipment. A campaign is now under way for a 10 per cent improvement in freight car utilization. A booklet entitled, "Getting Over the Hump," has been issued for free distribution by O.D.T., Washington, 25, D. C., which gives 44 suggestions on how to improve car utilization.

Cement Purchase Records

O.P.A. PART 1346: Section 1346.11 has been amended to read as follows: Every manufacturer and every dealer making sales or purchases subject to M.P.R. 224 of cement of the value of \$100 or more in any month after September 23, 1942, shall keep for inspection by the Office of Price Administration for a period of two years, complete and accurate records of each sale or purchase totaling \$50.00 or more, showing the date thereof, the name and address of the seller or purchaser, the point of delivery, the price paid or received, and the quantity, type of package, classification of cement sold, or purchased, and such other data as is customarily shown on the sellers' invoice.

(b) Reports. Persons subject to this regulation shall submit such reports to the Office of Price Administration as it may from time to time require subject to the approval of the Bureau of the Budget in accordance with the Federal Reports Act of 1942.

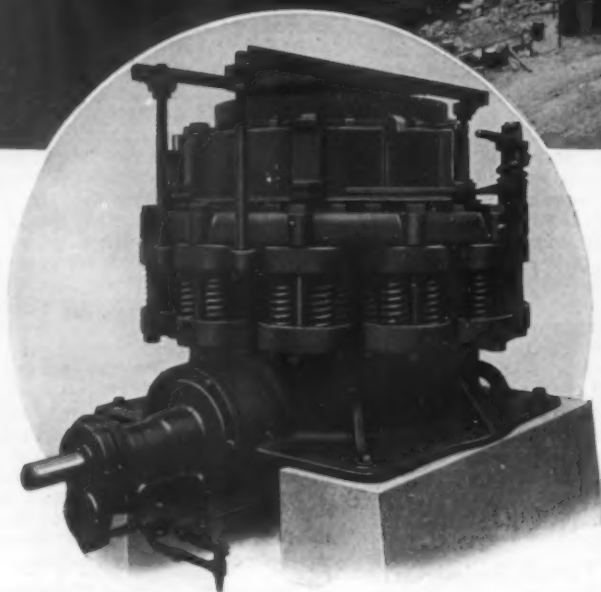
This Amendment No. 5 to Maximum Price Regulation No. 224 became effective January 18, 1944.

Changes in Cement Shipping Zones

W.P.B. PART 3157: Changes in Portland cement shipping zones designed to permit freer flow of this material in territories now deficient in supply, and to adjust some discrepancies brought to light since the present plan became effective on September 25, 1943, were announced January 12 by the War Production Board. Revision of Schedule 1 of General Haulage Conservation Order T-1 reduces from 93 to 73 the number of zones outside of which cement may be shipped only with WPB authorization. These changes, follow three months' experience with controlled cement deliveries, put into effect to conserve transportation by curtailing excess and cross hauling. Suggestions of the cement industry with regard to the original restrictions were taken into account in re-

(Continued on page 104)

Fine Crushing At Fontana Dam



The Fontana Dam operations are served by four Symons Cone Crushers. Two $4\frac{1}{4}$ foot standard cones take the oversize from a screen with $6 \times 7\frac{1}{2}$ inch openings and operate at a $1\frac{1}{2}$ inch setting. These crushers are followed by two 4 foot Short Head Cones set for about $\frac{1}{2}$ inch.

In supplying crushed materials required for the Fontana Dam of the Tennessee Valley Authority, finer sizes are being made by Symons Cone Crushers, as has been the case on so many of the larger construction projects. With a rated capacity of 800 tons an hour, this is one of the largest crushed stone plants in existence. Where big capacity of fine product is required, Symons Cones can be depended upon to deliver in quantity and at a cost which cannot be equalled by any other type of crushing equipment.

NORDBERG MFG. CO.
MILWAUKEE 7, WISCONSIN
NEW YORK • LOS ANGELES • LONDON • TORONTO



SYMONS CONE CRUSHERS

ABOUT THE INDUSTRY *News* AND PEOPLE

Resigns from W.P.B.

FRED L. WOLF, Deputy Director of the Mica-Graphite Division of the War Production Board, has resigned to become executive vice-president of the Ross-Tacony Crucible Co., Tacony, Philadelphia, Penn.

Huron Appointments

JOHN W. KENNEDY has been appointed general sales manager of the Huron Portland Cement Co., Detroit, Mich. DEWEY T. MEYERS has been made assistant sales manager and THOMAS W. MURRAY division sales manager.

Heads Red Cross Division

GEORGE C. WALTER, president of Southern Cement Co., Birmingham, Ala., has been appointed chairman of the industrial division for the 1944 Jefferson County Red Cross War Fund Drive.

Re-elected Safety Director

R. A. HUMMEL, president, Lone Star Cement Corp., New York, N. Y., has been re-elected a director of the Inter-American Safety Council, Inc., which was organized to further the interests of public and industrial safety in Latin America.

Promote Vice-President

W. N. FRY, Jr., has been promoted from vice-president to senior vice-president of the Fischer Lime and Cement Co., Memphis, Tenn., and JOHN D. MORAN, general sales manager, has been made a vice-president. L. T. MCCOY has been re-elected president of the company. W. S. WALTERS retains the office of vice-president and MISS L. HATFIELD remains secretary-treasurer.

Grady Cates Going into Building Material Business

C. GRADY CATES, formerly sales manager for Cinder Block, Inc., Roanoke, Va., and president of the Virginia Society of Professional Engineers, has again decided to go into business for himself. Born in Burlington, N. C., Mr. Cates came to Roanoke in 1912 as draftsman for the Roanoke Bridge Co., which later became the Roanoke Iron & Bridge Works, at which time he was made chief engineer and manager of sales. In 1921 Mr. Cates established his own business, selling building materials, principally iron and steel products, at the same time giving en-

gineering service on reinforced concrete design. He represented the Corrugated Bar Co., the Kalman Steel Co., Detroit Steel Products Co. and others. In 1930 Mr. Cates consolidated his business with the Stone-Tile & Supply Co., owned by M. W. Ferguson. From this combination developed Cinder Block, Inc.

Mr. Cates was assisted by his sons, C. Grady Cates, Jr., and J. Wallace

stations and other agencies in promoting the welfare of processed limestone for agricultural purposes.

Ranch Operator

HOMER BROWN, president of the Diamond Springs Lime Co., operates a 30,000-acre ranch in addition to his management of the company. The ranch is located near the mine in Diamond Springs, Calif.

On Building Code Committee

JAMES A. KEITHLY of the Mason Contractors Association of the United States, has been appointed a member of the Sectional Committee on Building Code Requirements and Good Practice. The scope of the committee is to establish construction requirements for masonry in building constructions that will be suitable for use in municipal building codes.

Retires from Universal

WILLIAM WORTMAN has retired from the Hudson plant of the Universal Atlas Cement Co. after more than 31 years of service. Mr. Wortman served the company in local public relations and is held in high esteem by the hundreds of workers employed by Atlas. He has twice been mayor of Hudson, and at the present time is president of the Board of Education.



C. Grady Cates

Cates, who are now Lieutenants (j.g.) in the U. S. Naval Air Forces. Lt. Wallace Cates is Naval Flight Instructor at the U. S. Naval Air Station in Memphis, Tenn., and Lt. Grady Cates, Jr., is in training at Dallas, Texas. Before enlisting, Lt. Grady Cates, Jr., was division sales manager for the Celotex Corp. at Dallas, and now is on leave of absence. Lt. Wallace Cates intends to return to the concrete products business after the war.

Limestone Assn. Officers

WILLIAM H. MARGRAF of the Marble Cliff Quarries Co., Columbus, Ohio, has been elected president of the Processed Limestone Association, Inc. JAMES EELS of Basic Dolomite, Inc., Cleveland, Ohio, was elected vice-president; P. E. HEIM of The Carbon Limestone Co., Youngstown, Ohio, was re-elected treasurer; and FRANK E. COOMBS of the Ohio Hydrate & Supply Co., Woodville, Ohio, was re-elected secretary. The Processed Limestone Association, Inc., was organized 25 years ago to cooperate with the agricultural colleges, experiment



Lt. (j.g.) J. Wallace Cates and C. Grady Cates, Jr.

Men of the Industry in Service

In the Navy

WESLEY P. BLIFFERT, engineer, Tews Lime & Cement Co., Milwaukee, Wis., is a Lieutenant (j.g.) in the Navy Civil Engineering Corps and is stationed at Camp Allen, Va.

EBER E. JAKES, formerly a salesman for the Southwestern Portland Cement Co., Los Angeles, Calif., is a Lieutenant in the Armed Guard of the U.S.N.R. and is stationed at the Brooklyn Navy Yard.

R. B. HINDMAN, formerly field engineer for the Lehigh Portland Cement Co., Allentown, Penn., is Executive Officer and Material Officer in the U. S. Navy.

L. A. MAYO, who has been in the concrete pipe business in Durham, N. C., is a Chaplain in the U. S. Navy.

PAUL W. SEABAUGH, formerly a chemist for the Marquette Cement Mfg. Co., Chicago, Ill., is a Naval Aviation Cadet at Iowa City, Iowa.

SAMUEL H. BRICKER of the Bellefonte Division of Warner Co., Philadelphia, Penn., is an Ensign in the U. S. Navy.

JOHN W. SMITH, assistant superintendent of Plant 19, Warner Co., is in the Seabees (Construction Battalion).

W. W. PURDY, co-owner of the Killbuck Sand & Gravel Co., is a Lieutenant Commander in the U. S. Navy, stationed at the Puget Sound Navy Yard, Bremerton, Wash.

Y. Z. ROYAL, formerly quarry superintendent for the Birmingham Slag Co., Birmingham, Ala., is in the U. S. Navy.

R. L. GUINASSO, accountant for Calrock Asphalt Co., San Francisco, Calif., is a cadet in the U. S. Navy. W. C. JONES, sales engineer, is a Lieutenant-Colonel in the Coast Artillery, and CLARENCE GOMEZ is in the Navy.

In the Army

E. E. FOOT, formerly with the Diamond Springs Lime Co., Diamond Springs, Calif., is now a Colonel in the Intelligence Division of the U. S. Army.

HENRY CROWN, chairman of the board of the Material Service Corp., Chicago, Ill., is a Lieutenant Colonel in the U. S. Engineering Corps.

ARNOLD SOBEL, maritime superintendent for the Material Service Corp., Chicago, Ill., is with the U. S. Army overseas.

MELVIN F. MUNCH, formerly assistant chemist for the Oregon Portland Cement Co., Portland, Ore., has been commissioned a 1st Lieutenant and is stationed at Camp Bowie, Texas.

HARRIS V. FEGELY, assistant superintendent, Monarch Cement Co., Humboldt, Kan., is in Officer Candidate School of the U. S. Army.

REV. SAMUEL BILBROUGH, office manager of the DeZendorf Marble Co., Austin, Texas, is a 1st Lieutenant Chaplain in the U. S. Army, and Augustin Diaz, grandson of a former president of Mexico, is a private.

R. E. ALLEN, purchasing agent and plant engineer, Metropolitan Sand and Gravel Corp., Port Washington, N. Y., is stationed at the Army Air Corps Training School at Jefferson Barracks, Mo.

ERNEST W. GASSAWAY, formerly yard manager and concrete technologist, Sacramento Rock & Sand Co., Sacramento, Calif., is in the Signal Corps at Drew Field, Fla.

H. A. COLEMAN, special representative, Missouri Portland Cement Co., Kansas City, Mo., is in the U. S. Army.

ROBERT HOMER, formerly managing editor of Warner News, house organ of Warner Co., Philadelphia, Penn., is in Africa with the U. S. Army.

JAMES C. GRIFFIN, formerly plant engineer, Marquette Cement Mfg. Co., Des Moines, Iowa, is a 1st Lieutenant in the Sanitary Corps of the U. S. Army.

W. R. BENDY, cement engineer, Claverack, N. Y., is now stationed in India, flying with the Air Transport Command.

RUSSELL N. THATCHER, formerly geologist and engineer with the Johns-Manville Corp., is in the U. S. Army at Camp Breckenridge, Ky.

In the Marine Corps

WILLIAM PORTER WITHEROW, JR., president, Cemenstone Co., Pittsburgh, Penn., is in the Marine Corps.

THOMAS L. WELLS, editor of *The Explosives Engineer*, is a 1st Lieutenant in the U. S. Marine Corps. He joined the Marines as a volunteer specialist.

Field Operations Director

T. H. MERRIAM has left the Portland Cement Association to become director of field operations for Stearns Manufacturing Co. Ted Merriam will act as a consultant for manufacturing and technical problems relative to the concrete products industry.

Following his graduation from the University of Illinois in 1923, he served as instructor at Rio Grande College and Ohio State University. In 1928 he joined the staff of the P.C.A. at Chicago, and worked under the direction of W. D. Allan in the Cement Products Bureau on the pro-

motion of lightweight aggregate concrete, supervised fire tests on concrete masonry, and other interesting activities. From 1933 through 1936



T. H. Merriam

he was in the farm supplies business at Ann Arbor, Mich., rejoining P.C.A. in 1937 to work out of the Michigan office as Concrete Products and Housing Field Engineer.

COMING CONVENTIONS

American Concrete Institute, Chicago, Ill., February 29 to March 2, 1944.

American Institute of Mining and Metallurgical Engineers, Hotel Waldorf-Astoria, New York, N. Y., February 20 to 24, 1944.

American Society for Testing Materials, Committee Meetings, Netherland Plaza, Cincinnati, Ohio, February 28 to March 3, 1944.

The Cast Stone Institute, Annual Convention, Bismarck Hotel, Chicago, Ill., February 14 and 15, 1944.

National Concrete Masonry Association, Annual Convention, Sherman Hotel, February 15 to 17, 1944.

Tax Bill Lightens Mineral Burdens

THE NEW FEDERAL TAX BILL now going through the mill in Congress provides that producers of certain critical minerals are to be granted percentage depletion allowances. The minerals are flake graphite, vermiculite, potash, beryl, feldspar, mica, talc, lepidolite and spodumene. This grant is for the duration of the war, except potash which would have a permanent allowance. The mining of fluorspar, flake graphite, and vermiculite would be exempt from excess profit taxes. The depletion allowance is 15 percent of gross income.

Open Quarry

INDEPENDENT GRAVEL CO., Joplin, Mo., has leased a building near the Alton Railroad near Louisiana, Mo., and will install crushing machinery to handle stone quarried from the river bluff near Clinton Spring. According to a local report, "the rock formation when powdered resembles talcum powder and is a base for putty." This rock was discovered in an old beer cellar under the bluff. The company purchased five acres of land in the early part of 1941, and began trucking the stone to Hannibal to be crushed, later shipping it to Canada. Rock is obtained by tunneling into the bluff. G. M. Bishop, superintendent, Hannibal, Mo., is in charge of operations.

Repair Dredge Boat

THE OHIO RIVER SAND & GRAVEL CORP., Parkersburg, W. Va., has raised its Diesel towboat *Dorothy* which was recently sunk after being struck by a tow of barges. It is now in the Parkersburg Dry Docks for repairs. Apparently the 120 hp. Fairbanks, Morse engine was not damaged by its immersion in the river, according to an inspection by engine company representatives.

Lease Quarry

THE CONCRETE MATERIALS CO., Cedar Rapids, Iowa, has leased the Boley quarry south of Memphis, Mo., a mile east of highway No. 15. The company expects to move equipment to the quarry and crush sufficient limestone to supply Scotland county under the A.A.A. program. When this is accomplished, the outfit will then move on to some other locality.

Dimension to Agstone

FOND DU LAC STONE CO., INC., located on Highway 41 near Fond du Lac, Wis., was formerly known as the Hamilton Natural Cut Stone and Flagging Co., but the name was changed at a recent meeting of the owners. Torsten Johnson, long identified with the cut stone business in Wisconsin, is president of the com-

pany; Arthur Behnke is vice-president and Dr. H. R. Sharpe is secretary and treasurer. The company produces a special agricultural limestone known as Hy-Test-Agstone. It also furnishes stone for walls, steps, buildings, rock gardens, fire-places, and gateways.

Temporary Shut-Downs

NORTH AMERICA CEMENT CO. has closed its Alsen, N. Y., plant, but a force will be kept to make possible improvements and repairs.

ALPHA PORTLAND CEMENT CO., and Lehigh Portland Cement Co., also have closed their Alsen, N. Y., plants for an indefinite period with cement bins full. Universal Atlas Cement Co. has reduced operations at Alsen to one kiln with a total capacity of three kilns.

LEHIGH PORTLAND CEMENT CO., has reduced cement manufacturing operations at its Metaline Falls, Wash., plant to one kiln. This action is locally reported to have been caused by inability to secure competent drillers and quarry help.

Wolverine Improvements

WOLVERINE PORTLAND CEMENT CO., Kalamazoo, Mich., has shut down its Coldwater plant but plans to make extensive improvements at its Quincy plant, according to R. C. Gleason, executive vice-president. The Quincy plant has been operating at full capacity.

Open Fluorspar Plant

WESTERN FLUORSPAR CO., has resumed milling operations at Northgate near Walden, Colo. The company, of which former Col. Leslie A. Miller is the principal stockholder, has rebuilt the plant, which was destroyed by fire some months ago. A car of milled fluorspar per day is now being shipped.

Mica in Massachusetts

GEORGE F. COGSWELL, Gardner, Mass., is operating what is probably the only mica mine in Massachusetts on the R. F. Brass property in West Warren, 29 miles from Worcester. A representative of Colonial Mica Corporation, government buying agency, reports early samples of good quality.

Stone Company Laboratory

FRANCE STONE CO., Toledo, Ohio, has purchased the old post-office building on West Second street in Perrysburg, Ohio, and will make alterations to cost \$25,000, converting the building into a large laboratory. Daniel C. Slee, vice-president and treasurer of the company, states

that the laboratory will be in charge of Dr. H. F. Kriege. The company has maintained a small laboratory in Toledo in rented quarters, employing four men, but the new laboratory will require a larger staff.

Open Silica Deposit

WESTERN MINERALS CO., Spokane, Wash., has obtained a royalty lease and option to buy the silica deposit of Mrs. Kathryn Grover about three and one-half miles northeast of Newport, Wash. The silica is to be quarried and shipped to a magnesium plant. A crushing plant is to be installed near the quarry.

Need Cord Wood for Lime

THE ROCHE HARBOR LIME CO., Roche Harbor, Wash., has made an appeal to its friends throughout the county for help in securing cord wood for its shaft lime kilns which are busy supplying chemical lime to war industries.

Buy Quarry

F. D. CLINE, Fairview Road, Raleigh, N. C., has acquired the quarry located between Stokesdale and Summerfield, N. C., and the Liberty Hill quarry property located on Phillips avenue in Bessemer, N. C. J. W. Thompson, 300 Benbow Road, Greensboro, N. C., is division superintendent.

Silica Plant Fire

THE SILICA SAND plant at Hanover, Wis., owned by Prof. M. E. Wing, head of the geology department, Beloit College, Beloit, Wis., was burned recently, including all equipment, dryers, conveyors, motors and machinery with a loss of \$25,000.

Reopen Silica Pit

THE EDISON SILICA plant, Edison, Nebr., has been reopened just south of this town. The product is used in the manufacture of soaps and cleaners.

Medusa Studies Dust

MEDUSA PORTLAND CEMENT CO., Cleveland, Ohio, has sent engineers to study the best method of eliminating the dust conditions at the Manitowoc, Wis., plant.

Pavement Yardage

AWARDS of concrete pavement for December, 1943, have been announced by the Portland Cement Association as follows:

	Square Yards Awarded	
	December 1943	Eleven Months 1943
Roads	730,057	9,639,119
Streets and Alleys ..	381,724	9,031,360
Airports	2,410,587	51,768,761
Total	3,522,368	70,439,240

Rock Products Industries

Men in the War

ACME LIMESTONE Co., Fort Spring, W. Va.: WILLIAM H. RUBY, Jr., chief engineer, is now Captain, U. S. Army, having been promoted from First Lieutenant. The company has 66 employees in the armed services. No casualties reported up to December 1.

W. C. BABCOCK GRAIN Co., Rensselaer, Ind., concrete products manufacturer: R. L. PAULUS, partner, is with the U. S. Army Engineer Corps. The company has 18 former employees in the services.

BARNES SAND AND GRAVEL Co., Pikesville, Ohio, reports three men in the services and one casualty.

BELLEVUE SAND AND GRAVEL Co., Bellevue, Ia., reports 12 employees in the services and one casualty.

CHARLES BLACK SAND AND GRAVEL Co., Amite, La.: CHARLES BLACK, Jr., secretary, is in the U. S. Navy.

BLAKE BROTHERS Co., Richmond, Calif., has 15 of its employees in the services.

BLUE RIDGE SLATE CORP., Charlottesville, Va.: RANDOLPH C. FARRA, secretary, is with the W.P.B.

BUFFALO SLAG Co., Buffalo, N. Y.: PAUL J. KREMER, assistant treasurer, is in the U. S. Navy. The company has 43 employees in the services. No casualties reported up to December 1, 1943.

CAROLINA CONCRETE PIPE Co., Inc., Columbia, S. C.: ROY PRESLAR, assistant auditor, is a Lieutenant in the U. S. Army. He is succeeded for the duration by MURRAY G. WHITE. The company has eight employees in the services.

UNITED STATES LIME PRODUCTS CORP., San Francisco, Calif.: H. R. BROOKMAN, sales manager, is a Commander in the U. S. Navy and has been decorated with the Legion of Merit in

connection with the North African invasion; CLAIRE GILLETTE, engineer, is in the U. S. Army; L. E. KELLEY, salesman, in the Army; ROY C. TREMOUREUX, engineer, son of Roy E. Tremoureux, president, is in the Army. Altogether the company has 21 employees in the services. CARROLL STEPHENS has been appointed manager of sales, San Francisco.

COLUMBUS GRAVEL Co., Columbus, Miss., has six employees in the services. C. G. KERSHAW has retired as president and is succeeded by his son, KNOX KERSHAW. C. F. HARRIS has retired as general manager, but no successor has been named.

CONSOLIDATED QUARRIES CORP., Decatur, Ga., has 28 employees in the services.

CONSUMERS SAND Co., Topeka, Kan., reports five employees in the services. CORD STONE Co., Versailles, Ind., reports three employees in the services.

DECKERS CREEK SAND Co., Morgantown, W. Va., has seven employees in the services.

EASTERN ROCK PRODUCTS Co., Utica, N. Y., has 42 employees in the services and reports five casualties up to December 15.

ERIE SAND AND GRAVEL Co., Erie, Penn., has five employees in the services, one of whom is in the U. S. Army Air Corps.

FORDYCE GRAVEL Co., San Antonio, Tex., has 110 employees in the services.

FRAZER MINING Co., Marion, Ky., has 12 employees in the services.

LEONARD FRY, crushed stone producer, Mercersburg, Penn., has 11 employees in the services.

GARRETT CONSTRUCTION Co., Springfield, Mo., crushed stone producer, has six employees in the services.

GIBSONBURG LIME PRODUCTS Co., Gibsonburg, Ohio, has 40 employees in the services.

GIFFORD-HILL & Co., Inc., Dallas, Tex., has 200 employees in the services with one reported casualty up to December 1, 1943.

GRAHAM BROS., INC., Los Angeles, Calif., has promoted RUSSEL C. GRAHAM from general superintendent to vice-president and general superintendent; J. I. JOHNSTONE from chief engineer to vice-president and chief engineer. The company has 69 employees in the services.

SOUTHERN CEMENT Co., Birmingham, Ala.: W. J. CABANISS, treasurer, is in the U. S. Navy; CHAS. WHITTEN WALTER, sales engineer, is a captain in the U. S. Army, and was decorated with the Silver Star, November 9, 1942, during landing operations in North Africa near Port Lyantey; he was decorated again, Oak Leaf Cluster to Silver Star for gallantry in

action April 7, 1943, in Tunisia. Capt. Walter has been returned to this country for some special duty.



Capt. Chas. Whitten Walter

GRAYSTONE CONCRETE PRODUCTS Co., Seattle, Wash.: HOMER BERGREN, secretary, is in the U. S. Navy; NORMAN S. FIELD, engineer, is in the Navy; KENNETH T. DURYEE, office manager, is in the U. S. Coast Guard. In all the company has 25 employees in the services. M. J. ATTRIDGE has been made personnel manager.

HAMDEN BUILDING TILE Co., Hamden, Conn., concrete products: RALPH PAOLELLA, vice-president, is in the U. S. Army; LEO A. SCILLIA, estimator, is in the U. S. Army Signal Corps. In all 13 employees are in the services.

J. M. HAMILTON & SONS, Marion, Ohio, agricultural limestone producers; A. M. HAMILTON, partner, is Lieutenant (J. g.), U. S. Navy. Two employees are in the services.

HELMS CONCRETE PIPE Co., Inc., Washington, D. C.: KRESS Z. GARRETT, assistant secretary-treasurer, is in the U. S. Army. Seven employees are in the services.

HILLS MATERIALS Co., Rapid City, So. Dak., has four employees in the services.

HOLLOSTONE Co., North Hollywood, Calif., has lost to the services or war industries all but two of its pre-war employees.

IOWA CONCRETE BLOCK AND MATERIAL Co., Des Moines, Ia.: GEO. HICKS, assistant office manager, is in the U. S. Army. The company has 14 employees in the services.

INDIANA GRAVEL Co., Inc., Indianapolis, Ind.: FRANK J. BILLETER, secretary-treasurer, is now Lieutenant-Colonel, Quartermaster's Department, U. S. A., at Fort Hayes, Columbus, Ohio. Two other employees are in the services.

LAKE VIEW GRAVEL Co., West Point, Neb., has five employees in the services and there has been one casualty.



Roy Tremoureux, Jr.

H. LARSEN, Rawlins, Wyo., aggregates producer, has three employees in the services.

LEHIGH PORTLAND CEMENT Co., Allentown, Penn.: HENRY A. RENINGER, director of safety and welfare, is a Colonel in the U. S. Army; HARRY A. HALL, manager, Eclipse Lighterage & Transportation Co., (a Lehigh subsidiary), is a Lieutenant-Colonel in the U. S. Army. The company had 471 employees in the armed services as of December 1, 1943.

F. D. LEWIS & SON, Greensboro, N. C., have five employees in the services.

R. C. MARTIN CONCRETE PRODUCTS, Sarasota, Fla.: R. C. MARTIN, proprietor, is with the U. S. Navy Seabees. The business was maintained under Mrs. Martin until November, 1943, but is now suspended for the duration.

MELVIN STONE Co., Melvin, Ohio, has nine employees in the services.

MISSISSIPPI LIME Co., Alton, Ill.: R. F. MATHEWS, assistant to the president, is a Lieutenant in the U. S. Army Air Forces; FRED CROOK, sales department, is Captain, U. S. Army Air Forces; C. C. ADDAMS, assistant superintendent, is a Lieutenant, U. S. Army; A. A. HARNEY, sales department, is a Lieutenant, U. S. Army; KENNETH PATTERSON, accountant, is a Lieutenant, U. S. Army; HERMAN BRUGGEMAN, sales department, is in the Army. Altogether the company has 116 employees in the armed services.

MORSE SAND AND GRAVEL Co., Attleboro, Mass., has five employees in the services.

MUTUAL MATERIALS Co., Seattle, Wash.: ELMER R. COATS, vice-president, is in the U. S. Army. Also 14 other employees are in the services.

NEAL GRAVEL Co., Mattoon, Ill., lists nine employees in the armed services, two overseas and one on the seas.

NEW ALBANY READY-MIX CONCRETE, Inc., New Albany, Ind., has 12 employees in the services.

NEW YORK TRAP ROCK CORP., New York City: STIRLING TOMKINS, president, is second in command of the American Red Cross in Africa, handling the executive work in North African and Mediterranean fields; WILSON P. FOSS, III, director and assistant to the sales manager, is Lieutenant (j. g.), U. S. Navy, and has been in command of a sub-chaser in the South Pacific. He is now receiving instruction at Miami, Fla.; DEXTER BULLARD, salesman, is a Lieutenant-Commander in the U. S. Navy, attached to the Washington, D. C., staff; EDWARD B. KIRBY, salesman, is a Lieutenant in the U. S. Navy Office of Supplies on the West Coast; FRANK D. LANSPEY, assistant purchasing agent, is in the U. S. Navy. Altogether 103 employees are in the services, including Major Misell, and the former office boy, James Tuero, who has been all through the North African and Sicilian campaigns.

JOSEPH D. FACKENTHAL, executive vice-president and counsel, is acting president, in the absence of Stirling Tomkins.

A. OVERGAARD ROCK PRODUCTS, Elroy, Wis.: Two foremen, ELMO LINESTON and LESTER WIDNER, are in the U. S. Army, together with five other employees.

J. F. PACE CONSTRUCTION Co., Glasgow, Ky., has two foremen in the services, GARNER NANCE, in the Navy, and W. D. ALEXANDER, in the Army. From 75 to 100 other employees are in the armed services and one casualty is reported.

PACIFIC COAST AGGREGATES, INC., San Francisco, Calif.: R. K. HUMPHRIES, assistant manager, retail division, and superintendent of transportation, is in the U. S. Navy. Altogether 108 employees are in the services.

RIVER PRODUCTS Co., Iowa City, Ia., crushed stone, has nine employees in the armed services.

ROCKYDALE QUARRIES CORP., Roanoke, Va.: KEITH WILLIS, assistant superintendent, is in the U. S. Army together with about one-third of all the other employees.

SAKRETE INC., Cincinnati, Ohio, has two employees in the services.

SCHMIDT CONCRETE PRODUCTS Co., St. Joseph, Mo., has four employees in the services.

SECURITY MATERIALS Co., Los Angeles, Calif., has two employees in the services.

SMITH LIME FLOUR Co., Elizabeth, N. J., is proud of its employee, STEPHAN BLAZOVSKI, who volunteered as a private and is now a sergeant with a fighting record in the North African and Sicilian campaigns.

WARNER Co., Philadelphia, Penn.: E. L. SHOEMAKER, chief engineer, is a Major in the U. S. Army; LEA P. WARNER, industrial relations manager, is a Lieutenant (j. g.) U. S. Navy; F. V. S. HAGGERTY, salesman, Wilmington, Del., division, is a



Major E. L. Shoemaker

Major in the U. S. Army; CALVIN PURNELL, personnel manager, Bellefonte division, is an Ensign, U. S. Navy; CHARLES A. ROBERTS, superintendent, Union Furnace, is a Major, U. S. Army.

SOUTHWEST STONE Co., Dallas, Tex., has 57 employees in the services.

STANDARD CONSTRUCTION Co., Boseman, Mont., sand and gravel: A. T. WHITE, vice-president, is in the U. S. Army Tank Corps. E. T. WHITE has been elected secretary-treasurer.

SUNSET ROCK AND SAND Co., Miami, Fla.: CARL ROWLAND, foreman, is with the U. S. Navy Seabees. About 10 employees are in the services. There has been one casualty. M. A. BOUVIER has been appointed superintendent of Plant No. 1, succeeding Tom Taylor, retired. Ed. SCANLON is superintendent of Plant No. 2 and H. V. ROBINSON of Plant No. 3.

VOLUNTEER PORTLAND CEMENT Co., Knoxville, Tenn.: J. R. DRUMMY, assistant sales manager, is a Captain in the U. S. Army Air Corps; J. R. HONEHEN, salesman, is a Captain in the U. S. Army Air Corps; CLIFFORD W. WAYLAND, sales department, is a Major in the Artillery Corps; G. H. REDFERN, salesman is in the Navy and W. K. LAND, salesman, is in the Navy. Altogether 33 employees are in the services.

WASHINGTON-IDAHO LIME PRODUCTS Co., Orofino, Ida.: E. J. SIMONS, Jr., vice-president, is in the U. S. Army Engineer Corps; H. S. COOLEY, chief chemist is with the U. S. Army (Chemical Warfare). Ten employees are in the services. DALE COOLEY has been appointed chief chemist.

WHITE ROCK SILICA SAND Co., Greenville, Penn., has five employees in the services.

WOODSTOCK SLAG CORP., Birmingham, Ala., has 10 employees in the services.

YAHOLA SAND AND GRAVEL Co., Muskogee, Okla.: W. W. DILLS, vice-president, is Lieutenant-Colonel in the U. S. Army Engineer Corps. Seven employees are in the services.



Lea P. Warner, Lt. (j. g.) U. S. Navy

HINTS *and* HELPS

Convenient Washing Plant

SEVERAL YEARS ago a slag company installed a new washing unit which receives material from seven bins located in the old plant structure and directly over a railroad track. An interesting system of handling slag to the washing plant was arranged. A 30-in. conveyor belt, 208-ft. centers, carries the material up a 25-deg. incline to the washing plant.

This conveyor passes horizontally under the seven bins, but is set off about ten feet from the bins. Chutes leading from the bins at an angle feed the conveyor belt, which leaves room directly beneath the bins for railroad cars to be loaded with unwashed material (railroad ballast). The chutes are tapped for loading the railroad cars.

With this set-up, any material in the seven bins, carrying sizes from 1½-in. to 10-mesh, can be washed by releasing the proper chute, and any blending of various sizes also can be selected for washing. A 25-ton capacity hopper has been erected directly above the conveyor belt at the point where the incline starts. This is for washing slag taken from the stockpiles. A standard gage railroad track runs from the stockpile to this hopper.

At the washing plant the material discharges on a double-deck 4- x 8-ft. screen. Eight two-inch water pipes

are passed over the screens, four over the upper and four over the lower screen, to wash the material as it passes over the screens. A pressure of 70 p.s.i. is supplied by a 6-in. centrifugal pump powered by a 20-hp. motor. The washed slag passes below to two bins, each with a capacity of 45 tons.

There is no regular supply of water except a creek which contains too much refuse. However, the area is full of springs and the water table is near the surface. A sump 12- x 20-ft. and 10-ft. deep was dug adjacent to the washing plant. This sump fills itself in a short time. Water is pumped from this sump over the screens, and the discharge passes down a wooden chute into a similar sump. From this sump there is an overflow connection to a third sump which has an overflow back to the first. In this way settling takes place twice, and there is a continuous circuit of water being reused.

Cost of Poor Packing

By W. F. SCHAPHORST

If you are a user of packing you know that it is one of the many things that cause a certain amount of trouble, especially when it must be removed, or when the shaft must be turned down smooth on account of scoring. Otherwise, it is seldom given a thought and the same kind

of packing is frequently used over and over, often at a considerable money loss. A simple test can easily be made to determine the friction of any other. This test, of course, should be made on a new and unscored shaft.

First, pack the stuffing box of a centrifugal pump, say, with packing No. 1, just tight enough so that there is no leakage. Then disconnect from the motor or engine, and rig up a crank of some kind so that the shaft can be turned by hand. This shaft must have a measured distance, in inches, from the center of the shaft to the point of application of the pull necessary to revolve the shaft. The direction of pull must always be at right angles with the crank arm. Rotate the shaft slowly, and by means of a pair of spring balances determine the pull required, as closely as possible, in pounds. Experiment with it until you are sure you have the correct number of pounds, and make a note of it so as not to forget.

Next, do the same thing with packing No. 2. Invariably one packing will cause more friction than the other. The packing that creates the least friction, to be sure, is the most desirable. This test can be continued from time to time until the packing of minimum resistance is found. Subtract the minimum pull from the maximum, both of which should be in pounds; multiply by the number



Washing plant to the right and screening plant to the left. Under bins on the left can be seen spouts inclining out to conveyor belt which goes to washing plant

of revolutions made per minute by the pump, and divide the product by 63,100. The answer is the horsepower loss due to poor packing.

Let us say, for example, that the pull with packing No. 1 in place is 10 lbs., and with packing No. 2 it is 4 lbs. The difference, therefore, is 6 lbs. If the length of the crank arm is 12 in. and the revolutions per minute of the pump are 600 we have

$$6 \times 12 \times 600$$

$$63,100$$

$$= 0.685 \text{ hp. loss}$$

Continual loss of this much power because of poor packing is quite an item. Perhaps you are losing more than this, perhaps not as much. At least, it is a test that is worth trying if you are dissatisfied with your present packing and wish to determine whether or not it will pay you to purchase a kind that may be more expensive but claimed to be much better. This can be figured on the basis of the cost of a horsepower per year. Thus if a horsepower per year costs you approximately \$50, the cost of power lost in the above example due to poor packing would be $\$50 \times 0.685 = \34.30 . It is plain, then, that a considerable money loss may lurk in your packing methods year in and year out. Buy the kind that seals effectively, and at the same time causes the least friction drag.

Water for Ready Mix

JANESVILLE SAND AND GRAVEL CO., Janesville, Wis., markets a considerable volume of its products as ready mixed concrete, and has erected a modern batching plant for this purpose. In the illustration is shown an interesting arrangement for supplying water to the tanks on the mixer trucks.

Two 250-gal. steel water tanks were mounted on top of the abutting concrete pier which supports the steel columns of the batching plant on one side. The tanks rest in shallow steel channels on the concrete which prevents them from moving. Both tanks are connected by piping, but the water is drawn from only one tank by a single 2-in. pipe having a swivel joint where the horizontal section of pipe joins the vertical section



Water flowing from two tanks into mixer truck tank can be easily controlled by the diaphragm type valve by the wire attached to valve lever arm and passing through pulleys within easy reach of the ground

from the tank. At the end of the pipe is a section of hose so that the water can be easily directed into the mixer tank opening. A wire passing over two pulleys is attached to the lever arm of a diaphragm valve in the horizontal pipe section, permitting control of the water from the ground level.

Easy Dumping Elevator Bucket

By JACK F. PRUYN

TRouble is often experienced in handling damp or wet material in bucket elevators and many an operator may have wondered whether a shovel might not have been better. Most of the grief seems to be due to the packing of material in the buckets, causing a suction which will not allow the wet material to dump.

Many crude attempts have been made to remedy this problem; such as, hanging chains or weights that hit the buckets, sprays, belt-slappers

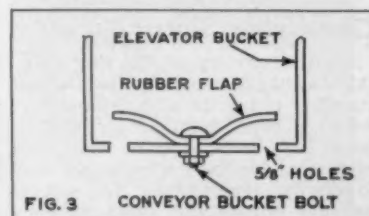
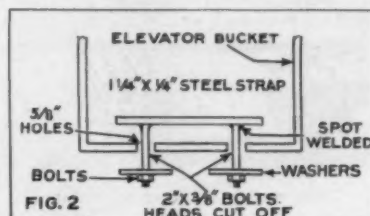
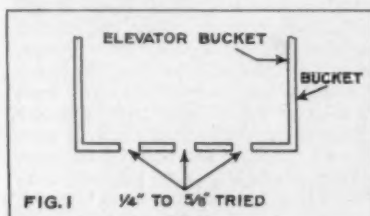
or shakers, etc., but most of these attempts made junk out of the whole elevator in short order.

A large western plant seems to have found the real solution to the bucket dumping problem. The sketches in the illustration show the evolution in methods to cure the trouble.

An objection to the type of bucket arrangement in Fig. 1 is that fines are lost and tend to build up in the elevator boot. It also caused surging and the buckets would not dump consistently.

Fig. 2 illustrates a type which worked well and caused the buckets to dump regularly. The drawback to this type is the wear and tear on the bucket and bolts. There is something to be said for this type, however, as the dragging and bumping of the long $\frac{3}{8}$ -x 2-in. bolts against a suspended rubber flap will cause any kind of wet material to discharge from the bucket.

Fig. 3, the finally developed type, has been used very successfully.

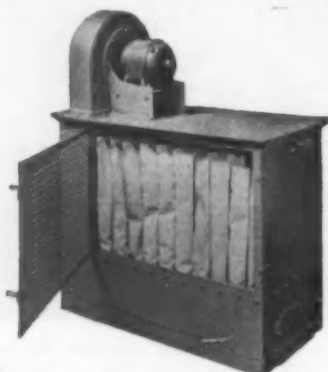


Three methods of equipping elevator buckets to discharge wet material. Fig. 1: Various sized holes ranging from $\frac{1}{4}$ -in. to $\frac{3}{8}$ -in. were drilled in the bottom of each bucket. Fig. 2: Two bolts with heads cut off were spot-welded along the center line of a $\frac{1}{4}$ -x $\frac{1}{4}$ -in. steel strap. Two $\frac{3}{8}$ -in. holes were drilled in the bucket, and the bolts and strap were assembled as shown. Washers are loose and an inch to two inches of play is left. Fig. 3: Two $\frac{3}{8}$ -in. holes are drilled in the bucket. A rubber strap is bolted to the bottom of the bucket with an elevator bolt. This strap is cut and centered so that it acts as a valve over the two $\frac{3}{8}$ -inch holes. This arrangement worked most successfully

NEW Machinery

Portable Dust Collectors

THE NORTHERN BLOWER CO., Cleveland, Ohio, is now marketing a complete line of bag type portable dust collection units ranging from 300



Portable bag-type dust collection unit

c.f.m. up and having up to 8-in. static pressure at the fan. These portable units are designed for light dust loads and intermittent service and are equipped with $\frac{3}{4}$ - to 3-hp. motors. The bags are cleaned by hand shaking.

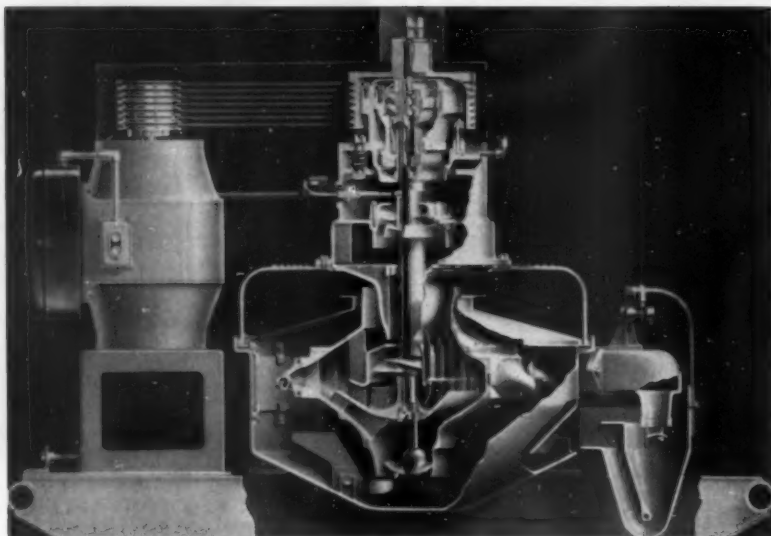
Based on cylindrical bags with dust laden air entering at the bottom and flowing upward inside the bags against gravity, the new portables embody the same principles as are used in Norblo bag-type systems for large scale dust collection.

For wet or moist grinding or polishing or where lint or fibrous fabric is produced, a new line of Norblo impingement and filter type small units is available, ranging from 500 to 1000 c.f.m. with 8-in. static at the fan. The filter type units cost less than bag-type, but the makers emphasize that they should not be considered as alternative but that either type should be selected on the basis of dust load characteristics.

Classifying Slurry

MERCO CENTRIFUGAL CO., San Francisco, Calif., developed its centrifugal classifier primarily as a desander to separate sand from rotary drilling mud, but it is claimed that this equipment has been successfully used to classify cement slurry. The accompanying illustration shows its construction.

In the Merco Type A-24, the rotor is suspended on double thrust radial ball-bearings. The series of jets or nozzles in the periphery of the rotor are highly resistant to abrasion.

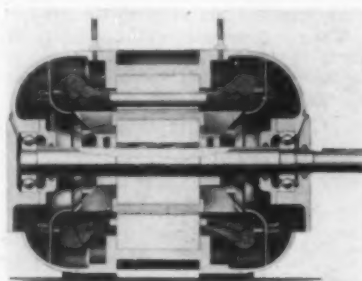


Cut-away view of centrifugal classifier showing details of construction

Bearings have positive lubrication through a circulating system of oil. An automatic cut-off device on the shaft stops the motor should it start to oscillate or vibrate due to any unusual cause. The speed of centrifuge is 800 r.p.m., and the separation is at approximately 200-mesh. Density of underflow is up to 2.0 specific gravity. For desanding, the capacity is about 350 g.p.m. It is operated at 220-440 volts, a-c., with a 20-hp. motor running at 1750 r.p.m.

Drip-proof Motor

THE LIMA MOTOR CO., Lima, Ohio, has brought out a line of ball-bearing, squirrel-cage motors having drip-proof, semi-enclosed construction.



Cross section of drip-proof motor

The cross-section illustration of the motor shows its construction.

These induction motors are built in a large range of sizes for general and special applications. For general purpose drives, such as pumps, ma-

chine tools, etc., the Type R.S. is recommended with normal torque, normal starting current. For normal torque, low starting current applications, the Type RSL is advised. For installations such as air compressors, plunger pumps, etc., where high torque, low starting current motors are required, the Type RSH is recommended.

Hydraulic Classifier

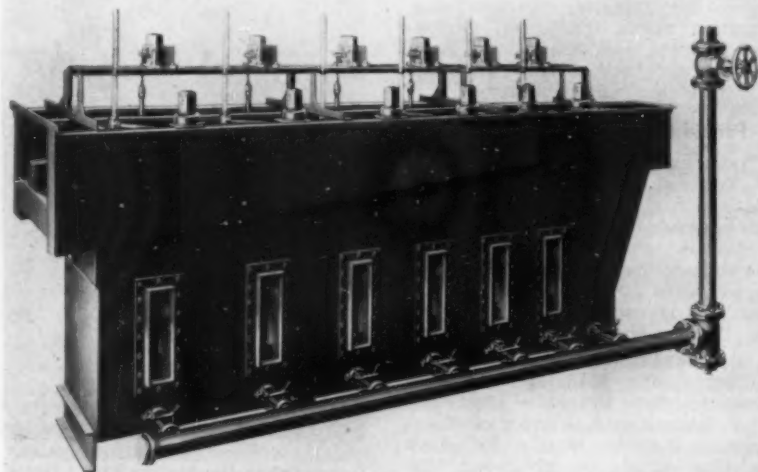
THE DORR CO., New York, N. Y., has developed what has been called the Dorco Hydrosizer to utilize the principles of hindered settling classification for the grading of 4-mesh or finer particles and provide a fully automatic control having a high degree of sensitivity. Separation is effected due to differences in the specific gravity or particle size of the material to be treated, or a combination of both.

This recently designed hydraulic classifier consists of a tank subdivided into five or more trapezoidal pockets, the areas of which increase from the feed to the overflow end. These pockets are separated from each other by a baffle plate, and are equipped at the bottom with a perforated constriction plate with holes having a diameter and spacing corresponding approximately to the size particles to be retained in each pocket. Hydraulic water is introduced under the constriction plates from a water header through an adjustable pinch valve and then into the hydraulic water compartment under each pocket.

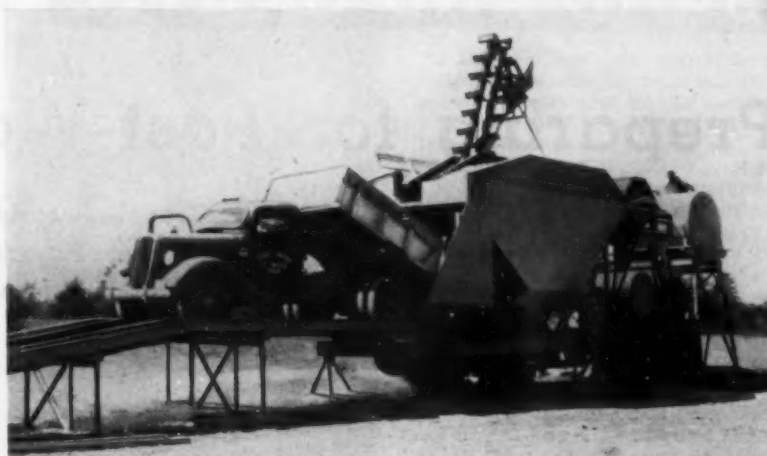
In the center of the constriction plate a discharge valve is located, consisting of a valve seat, discharge pipe, and plug valve which is held at the end of a valve rod and cable. This cable is attached to the valve motor—a modulating, reversible motor which activates the plug valve. Electrically connected to the valve motor is the valve motor control—an extremely sensitive pressure registering instrument which constantly measures the hydrostatic head in the standpipe located in each pocket. Changes in head are immediately transmitted to the valve motor which automatically raises or lowers the valve plug to compensate for them. The top portion of the standpipe extends above the machine and consists of a graduated lucite tube which enables the operator to easily check the hydrostatic pressure in each pocket. Glass windows are provided so that the teeter conditions in each pocket can be observed, and hand-holes permit easy cleaning of each pocket.

Feed is introduced at the narrow end of the machine into a feed compartment, where preliminary sorting occurs. When the unit is adjusted, the discharge mechanisms in each compartment reach a balance determined by the hydrostatic pressure at which the valve motor control has been set. Thus, when no major change in feed characteristic occurs, each spigot product is uniform and discharged continuously. No manual adjustments are necessary except where abnormal changes in the feed occur, and in this case the operator can easily adjust the machine to its best efficiency under the new conditions.

This unit is said to have been successfully applied to the preparation of table feed and specification sand and in the concentration of phosphate rock, iron ore and chromite.



Hydraulic classifier designed for the grading of 4-mesh or finer particles



Portable batching plant is controlled by one man through an ingenious grouping of all levers at one location

Portable Batching Plant

THE C. S. JOHNSON Co., Champaign, Ill., has designed a portable batching plant to proportion concrete materials for highway mixing equipment, which is known as the Porto-Batcher. Long hauls of mixed concrete by the mixing equipment are eliminated by the use of a complete portable batching plant which can be towed behind a truck to the pouring area.

All materials are delivered to the batching unit in bulk material trucks. Advantages claimed for this unit include; (1) elimination of considerable handling equipment, and (2) reduction of the number of mixing units per concrete yard miles.

A unique feature of the portable batcher is the Johnson charging skip. By providing proper intermingling of aggregate with cement when discharged into the mixer, this charging skip provides pre-mixing and pre-shrinkage which is said to compare favorably with the results of perma-

nent batching plants. The charging skip has a capacity of 43 cu. ft., 33 cu. ft. for aggregates and 10 cu. ft. for cement. The aggregates from these three storage compartments reach the skip through three fill valves. Cement and each size aggregate are weighed on a separate weight beam. The cement compartment is completely sealed to avoid contact of the cement with wet aggregates. Batching cycle is 90 seconds.

Pneumatic-Tired Lift Truck

WILLAMETTE HYSTER Co., Portland, Ore., has brought out its Hyster "20" gasoline engine powered lift truck of 2000 lb. capacity on pneumatic tires. It is said to be particularly adapted for operation in narrow aisles and crowded quarters. Other advantages claimed for this unit are that pneumatic tires practically double the operating speed, provide smoother travel over rough ground, better traction up ramps and greasy floors, and reduce floor maintenance.

It is a fork type unit with a 25-hp., four-cylinder, v-type motor equipped with spark arresting mufflers. The truck has a 66-in. turning radius. It has a wheel base of 45-in., with an overall length, not including load arms, of 71 in., and 36 in. wide.



Lift truck has short turning radius

SAND AND GRAVEL

Preparing for Post-War Business

National Sand and Gravel Association and
National Ready Mixed Concrete Association hold
joint sessions in New York City, January 25-28

AN ATTENDANCE exceeding 600 members and guests (almost 600 registered) at the annual conventions of the National Sand and Gravel Association and the National Ready Mixed Concrete Association afforded fine testimony to the value of the subjects covered at these annual meetings. Delegates came from every corner of the United States to New York City where the two Associations met concurrently at the New Yorker Hotel, January 25-28, inclusively. The Warner Co., Philadelphia, Gifford-Hill and Co., Dallas, Texas, Gallagher Bros. Sand and Gravel Corp., New York, N. Y., and the Metropolitan Sand and Gravel Corp., New York, N. Y., with 10, 6, 6 and 5 delegates, respectively, headed the list.

Bringing the conventions to New York City had the advantage of offering the finest in entertainment, and as a result, 36 ladies were registered at the conventions. Up to the time the conventions adjourned the principal unanswered question was how John D. Gregg could come all the way from California and walk off with four tickets to "Oklahoma," the outstanding musical comedy in New York and one which hundreds would like to have witnessed.

However, no entertainment features were scheduled and, judging from the attendance at all the meetings, New York's attractions were really secondary. In fact, there was standing room only available in one of the hotel's largest ballrooms at an open forum evening meeting covering the design of concrete mixtures that did not adjourn until 11 p.m. Much of the overflow crowd consisted of engineers, inspectors and officials of New York City and surrounding communities as well as operating men from local and nearby producing plants.

For the second consecutive year there were no machinery exhibits, in compliance with the government's desire to eliminate unnecessary freight movement. The National Sand and Gravel Association convened on January 25 for three days, with the National Ready Mixed Concrete Association convention beginning January 26 in order to reduce



Robert Mitchell, Consolidated Rock Products Co., new president of N. S. & G. Association

the concurrent meeting problem, for the benefit of delegates having direct interest in sessions of both Associations.

Individual sessions featured the open forum type of discussion while joint sessions were held with picked speakers to address the conventions on subjects of interest to all. Post-war prospects, priorities, specifications, car supplies, merchandising, taxation, prices, manpower, employer-employee relations, federal legislation and engineering problems comprised the subject matter.

President Conrades' Address

PRESIDENT OTTO CONRADES of the National Sand and Gravel Association, in his address, complimented the membership for its accomplishments in support of the war effort. He stressed the timeliness of the subject matter of the convention and particularly urged full participation by all in the open forum sessions.

In commenting on Association activities during 1943, Mr. Conrades complimented Executive Secretary V. P. Ahearn and Director of Engineering Stanton Walker for their untiring efforts in promoting the usefulness of the Association to the membership.

Mr. Conrades predicted that specification problems will become increasingly important during the post-war period, as engineers not only will strive for better construction but will have more time to devote attention to specifications as emphasis switches from the necessity of early completion to quality of work. The objective of the Association's laboratory work, he said, would be to develop information which will permit the keeping of specifications on as rational a basis as possible.

He extended the appreciation of the Association to the University of Maryland and particularly to President H. C. Byrd, and Dean of Engineering S. S. Steinberg, for their fine cooperation with the laboratory work under way at the University.

Appreciation was also expressed for the cooperation on priorities received from Mr. Arthur Knoizen, Mr. James E. Bacon and Mr. Roy Dagen of the W.P.B., as well as to Mr. Edward W. Bauman for his helpfulness as a past member of W.P.B.

The year 1943 did not turn out to be as poor a production year as was anticipated by many, according to preliminary reports at Mr. Conrades' disposal. Commercial sand and gravel production totaled approxi-



Garvin Pelsue, Metropolitan Sand & Gravel Corp., left, takes up some matters with Stanton Walker

ROCK PRODUCTS

mately 148,000,000 tons or 25.8 percent less than 1942 production, which placed the production somewhere between the 1940 and 1941 figures as reported to the U. S. Bureau of Mines. Some areas experienced reductions of as much as 50 percent, however.

As to the future, Mr. Conrades anticipates a continued diminished outlet for sand and gravel until at least the end of the European phase of the war and possibly three or four months longer. If the Germans should capitulate or be defeated by July 1, there would be a construction revival about August or September, in his opinion. This revival, which would start prior to termination of the Japanese conflict, will be spearheaded by a highway construction program and supplemented by some residential and commercial building, in Mr. Conrades' opinion.

He urged that all sand and gravel producers keep their equipment in good repair and maintain a reasonable reserve of finished materials in stock in anticipation of a sudden construction revival and that an active part be taken in post-war construction planning and the preparations for useful projects.

In commenting on membership, Mr. Conrades said that the Association now represents about 75 percent of the total annual commercial tonnage. Thirty-five new members were added in the last two years, from 18 different States, of which eight are from California.

New Officers

ROBERT MITCHELL, president of the Consolidated Rock Products Co., Los Angeles, Calif., was elected president of the National Sand and Gravel Association. H. S. DAVISON, Pittsburgh, Penn., and HARRIS N. SNYDER, Buffalo, N. Y., were reelected vice-president and secretary-treasurer, respectively. T. E. POPPLEWELL, Fort Worth, Texas, and GEORGE W. RENWICK, Chicago, Ill., were reelected to the executive



Theo. Aulmann, Eagle Iron Works, Des Moines, Iowa, new chairman of the Manufacturers' division, N. S. & G. Association

committee. New members of the executive committee elected were R. N. COOLIDGE, Nashville, Tenn., and A. R. SHIELY, St. Paul, Minn.

Manufacturers Division

At a meeting of the Manufacturers' Division, National Sand and Gravel Association, THEO. AULMANN, Eagle Iron Works, Des Moines, Iowa, was elected chairman. Vice-chairmen are: E. T. GOES, Koehring Co., Milwaukee, Wis.; ABE GOLDBERG, Allis-Chalmers Manufacturing Co., Milwaukee, Wis.; L. W. SHUGG, General Electric Co., Schenectady, N. Y.; FRANK B. UNGAR, The Ludlow-Saylor Wire Co., St. Louis, Mo.; FRANK WYSE, Bucyrus-Erie Co., South Milwaukee, Wis., and J. HARPER FULKERSON, Cross Engineering Co., Carbon-dale, Penn. H. M. DAVISON, the first chairman of the Division, was an honored guest of the meeting.

Directors' Meeting

The board of directors of the National Sand and Gravel Association met on Monday, January 24, in New York City, in connection with the 28th annual convention of the Association. In addition to the usual items of business, certain matters of activity and policy were discussed which are of broad general interest. One of these is the desirability of the Association gathering and keeping on file a record of all the union labor contracts entered into by its members and a digest of their provisions. At present it seems that labor union locals are better informed about other local union contracts than are employers.

Another matter considered and acted upon favorably by the board was provision for the National Ready Mixed Concrete Association to establish research work at the University

of Maryland under the auspices of the Stanton Walker Fellowship of the National Sand and Gravel Association. This research work was subsequently authorized by the board of directors of the National Ready Mixed Concrete Association.

A committee of the board to study and summarize cost accounting practices in the industry was authorized.

The matter of making some provision for pensioning employees of the Association staff in the years to come was brought up and favorably received and a committee appointed to study ways and means.

The Association is in fine financial condition with a very respectable surplus in cash and in U. S. Treasury Savings Bonds.

Safety Trophies

IN PRESENTING the National Sand and Gravel Association safety awards provided by Rock Products, Mr. Hill requested Robert Mitchell, president of the Consolidated Rock Products Co., Los Angeles, Calif., to accept the trophy for its Alameda plant, having the best safety record of plants operating more than 100,000 man-hours. Mr. Mitchell introduced Walter Good, manager of the Transportation Department of his company, who is very much concerned with safety, to accept the award for his company. The second trophy was awarded to the American Aggregates Corporation, No. 7 plant, Logansport, Ind. Fred D. Coppock, president of the company, requested that Mr. Hole accept the trophy for the plant having the best safety record for plants operating less than 100,000 man-hours annually. The trophies this year were made of precast concrete in which an illustration of the winning plant was engraved in the concrete by a sand blasting process.

Car Supply in 1944

CALEB R. MAGEE, Association of American Railroads, speaking before the convention of the National Sand and Gravel Association, January 25, did not paint a very optimistic picture of available transportation for the industry in 1944. He told at length of the remarkable feat of the railways in handling the greatest traffic in history with fewer locomotives and cars, with shortage of manpower and many new and inexperienced employees, and added that 10 percent greater traffic must be handled in 1944. Since greater loadings of coal and iron ore are expected in 1944, the open-top car situation is likely to be tight.

However, the railway roadbeds are in greater need of ballasting than ever before, and Mr. Magee thought they would require more ballast than in 1943, which was a big year for many ballast producers.



H. M. Davison, Hackensack, N. J., first chairman of Manufacturers' division, N. S. & G. A.

Secretary Ahearn's Report

IN HIS ANNUAL REPORT to the National Sand and Gravel Association, executive secretary V. P. Ahearn commented on all the federal legislation that conceivably would affect the industry. In his opening remarks, he congratulated the industry for the dispatch with which it produced the greatest tonnage in its history in 1942. He said the 1943 demand for railroad ballast was the greatest since 1929 and that there will be important tonnages in 1944 to accommodate the heavy, fast trains now in service. He was gratified for the cooperation extended to the industry in the matter of railroad cars although the condition of railroad cars has left much to be desired.

In his opinion, the industry may be relieved from the cross-hauling order of O.D.T., since cross-hauls are not an evil in the sand and gravel industry. He also believes the provisions for rail-truck coordination will not be applied to the industry and that the O.D.T. threatened order to eliminate the weighing of cars loaded with sand and gravel in order to speed up car movements will not be applied. The order had been issued in Texas but was dropped.

In commenting on the problem of owner-drivers for trucks, Mr. Ahearn mentioned the Grand Rapids Gravel Co. adverse decision which ruled that the gravel company must pay unemployment compensation premiums to such drivers, who were ruled to be employees. While the ruling was against the gravel company in this case, Mr. Ahearn believes some good came from it, namely, that there is no way to prove that a hired driver is an independent contractor. The point he brought out was that when-

ever a trucker is hired, the hiring company should make certain that the trucker is receiving social security from some source.

As to the status of the industry in the eyes of the War Manpower Commission, the position has been taken that the industry as a whole is not "essential" even though the clause, "materials exclusive to construction" which excluded the industry from an essentiality rating has been stricken out. In Ohio, a ruling has been handed out that the production of railroad ballast is non-essential, but Mr. Ahearn expects the ruling will be corrected.

In commenting on the subject of safety, he said that there has been a great improvement, both as to severity rate and frequency rate, in the industry but there is much to be accomplished to improve the record. To emphasize the value of reducing accidents, he mentioned some national figures on accidents. There have been 36,500 killed in industrial accidents since Pearl Harbor and 4,500,000 disabled.

Mr. Ahearn urged the industry to give every opportunity for employment to discharged veterans. He believes industry will have to revise its ideas about handicapped workers and that insurance companies should consider letting down the barriers.

Mr. Ahearn covered the same subjects in his address to the National Ready Mixed Concrete Association, with some additions which apply only to ready-mixed concrete producers. He said that the Price Adjustment Board has ruled that the industry not be excluded from its price provisions, which will work a hardship on the industry. The 3 percent tax

on the transportation of property for hire was explained in some detail.

There has been excellent cooperation from draft boards, and Mr. Ahearn urged the industry to protect



On right is J. J. Pederson Bros., St. Paul, Minn., and Jos. Chalupa, Standard Building Material Co., St. Paul, Minn., to the left

its essential men. While the industry is not on the essential list, it has been ruled essential locally in California and many local officials recognize the essentiality of the industry.

He mentioned the annual safety contest of the National Sand and Gravel Association, sponsored by the U. S. Bureau of Mines and for which Rock Products annually awards trophies to the winners, and suggested that the ready mix industry give consideration to a similar contest.

Ready Mixed Concrete Directors' Meeting

The board of directors of the National Ready Mixed Concrete Association met January 25 in connection with the annual convention of the Association. The principal order of business, in addition to routine reports, was the action of the board in establishing a research foundation at the University of Maryland in co-operation with the National Sand and Gravel Association and the University.

The purpose of the research, as stated in the contract with the University, and the National Sand and Gravel Association, "is to carry out researches into the properties of concrete for the information of manufacturers and users of ready-mixed concrete."

Another act of the board was to accept an offer of the Ready Mixed Concrete Mixer Manufacturers' Bureau, a newly organized group of all the manufacturers of truck mixers to father the organization. The purpose of this organization is to standardize mixer capacity ratings, etc., as has been done in the other branch of the concrete mixer industry, under the auspices of the Associated General Contractors of America.

The association is growing rapidly; it now has 168 members, 48 new ones having joined in the past year.



Left to right: Mrs. Otto S. Conrades, St. Louis, Mo., and Mrs. Donald D. Reynolds, Boston, Mass.

Ballast-Aggregates

New A.R.E.A. ballast specifications, concrete aggregates, bituminous mixtures

ONE ENTIRE AFTERNOON session of the convention of the National Sand and Gravel Association was devoted to an open forum on specifications for sand and gravel as engineering materials. ALEX. FOSTER, JR., past-president presided.

STANTON WALKER, director of engineering, National Sand and Gravel Association, started the session with a sketchy description of the new specifications for railway ballast of the American Railway Engineering Association. Mr. Walker is a member of the ballast committee of the A.R.E.A., and the specifications have not yet been published, as they soon will be, so Mr. Walker could not go into details.

Some 23 million tons of railway ballast was produced in 1942, which was 17 percent of aggregate production, including the railways' own output, or 25 percent of commercial production alone. Rationalization of specifications through the last 25 years has done much to increase the use of gravel for ballast. The earliest work on behalf of the industry was done by the late Earl Zimmerman of Cincinnati, Ohio. Throughout, the A.R.E.A. has been very cooperative with the industry, Mr. Walker said.

More recently, under the leadership of Mr. Walker, all types of ballast have been brought under a single specification, which has uniform re-

quirements except as to grading. For toughness, the Los Angeles rattler test has taken the place of the former Deval test.

The new specification allows for three different gradings of gravel ballast designed to give stability with both natural and crushed material. One grading permits as much as 40 percent of fine material. The new specification really reflects current practice of many railway engineering departments. A survey of these various specifications is to be published by the A.R.E.A. this month (February, 1944).

Mr. Walker said the tendency is definitely in the direction of universal adoption of the new A.R.E.A. specification. Ballast specifications recently issued by the Federal Specifications Board also closely follow these A.R.E.A. specifications. As soon as the new specification becomes available, Mr. Walker urged all producers to become thoroughly familiar with it.

Since the details of the specification were not available, there was little discussion, but the interest of the producers was certainly aroused.

Concrete Aggregates

C. E. WUERPEL, principal engineer, Central Concrete Laboratory, Corps of Engineers, U.S.A., discussed the results of his tests of concrete and his ideas of aggregate specifications

at considerable length. Mr. Wuerpel is noted in the American Society for Testing Materials as a leader in advanced ideas on many problems relating to concrete, and his influence in the writing of specifications is considerable.

He began by saying that in his opinion the test of a good aggregate was "any aggregate that would make good concrete," and suggested the possibility of synthetic aggregates. The most important characteristic of a good aggregate is homogeneity as to grading, mineral composition, etc. This means among other things more accurate grading. He mentioned the aggregates plant of the Grand Coulee dam as proof that accurate sizing and scientific recombination of the desired sizes can be accomplished on a commercial scale.

On the structural soundness of aggregates, Mr. Wuerpel is somewhat unconventional, since he puts little faith in experience records, although he admitted he knew of no satisfactory laboratory test. He said experience was too contradictory, even glacial material is often non-uniform or irregular in quality. Moreover, the real test of an aggregate was not of the aggregate alone, but of its service in the concrete.

STANTON WALKER, discussing Mr. Wuerpel's talk, called attention to the severity of the 2 percent maximum on absorption. He said that of 127 coarse aggregates tested, from all parts of the country, 62 percent had absorptions in excess of 2 percent, yet all these aggregates came from deposits that have been used successfully for many years for concrete.

Mr. Wuerpel had suggested a 35 percent loss in the Los Angeles rattler test as the top limit. Mr. Walker said that 36 percent of these gravels tested in excess of 35 percent rattler loss. CHARLES E. PROUDLEY, North Carolina State Highway and Public Works Department, said that the 35 percent maximum in the rattler test would eliminate two-thirds of the gravel used as concrete aggregate in his part of the country. He said his highway department had used gravels having a 55 percent rattler loss, with satisfactory results.

Mr. Proudley agreed with Mr. Wuerpel that the test for a good aggregate was its ability to make good concrete, and that if the concrete was good we should not be too con-



C. T. Raber, Glens Falls Portland Cement Co., left, with C. E. Proudley, State Highway and Public Works, Raleigh, N. C.

SPECIFICATIONS

cerned with what went into it. He thought we should pay more attention to the study of fatigue in concrete.

More insurance that the producer would furnish materials as good as his samples, and that he would exercise more responsibility for closer grading, were among the desires expressed by Mr. Proudley, who seemed to think that check testing of gradation should be done by the producer and not exclusively by the purchaser. Mr. Proudley was a former assistant to Stanton Walker in the engineering department of the National Sand and Gravel Association, so his remarks are particularly significant.

Mr. Wuerpel, replying to a question as to whether his 35 percent abrasion loss applied to all concrete or only to paving concrete, said it applied to all concrete, since wear and erosion must be taken into account in all concrete structures; also, he said, because there is some general relationship between abrasion resistance and the quality of the aggregate.

Mr. Wuerpel repeated his opinion that producers should assume more responsibility for accurate grading. He said the question of economics was often over emphasized. Economics is an abused word, he said. Higher priced aggregates might be the more economical, he added, through permitting greater refinement in design.

Mr. Proudley volunteered the opinion that the U. S. Army Engineers did not appear to be too concerned with the economics of the structures they designed. He suggested specifying the cement factor in concrete and the minimum strength required, and letting the aggregate producer furnish material of his own compounding to fill the bill.

Mr. Walker asked Mr. Wuerpel what his opinion would be of an aggregate that would not pass his tests but did show up well in a freezing and thawing test. Mr. Wuerpel answered that he would still reject it, because there was not enough known about the adequacy of the freezing and thawing test. Asked if the aggregate passed all but the absorption test, would he reject it, Mr. Wuerpel said, no, it would not be rejected. Asked what tolerances would be allowed in the 2 percent absorption test, he said he thought \pm or -0.1 percent was feasible.

Bituminous Mixtures

BERNARD E. GRAY, general manager and chief engineer of the Asphalt Institute, reviewed recent specifications and practice in bituminous pavement construction, dividing his discussion into the use of gravel as a foundation and as a surfacing material. He said there was growing recognition of the use of graded aggregates in base courses, to encourage the use of premixed gravel as the cheapest and best. Where good gravel is plentiful its use alone without asphalt admixtures made a satisfactory base course. Better methods of compacting the base course than the usual procedure are necessary, he said.

Mr. Gray said the specifications have been rewritten in the last two years, and that they provide for any type of aggregate which will serve the purpose. He thought the tendency was definitely toward the use of commercial aggregates; that the road mix started in localities where commercial aggregates were not available. He thought prepared commercial aggregates would be preferred on the basis of relative economy, for more satisfactory results.

Mr. Gray described a new method of repairing worn-out city pavements by surface treatment with preheated sand, very lightly coated with a cut-back asphalt, which overcomes the hydrophilic properties of this aggregate. Speaking of the present neglect of pavement maintenance, he said at least 750 million dollars a year would be required for maintenance and repair of city streets in the immediate post-war period.

Mr. Walker asked if it were not possible to design a bituminous mix, in which by using a denser mixture, angularity of the aggregate particles could be left out of consideration. Mr. Gray hedged on this one, by saying that the coarser (more open type) of pavement did depend on the shape of the aggregate for stability; however, he added, one could not arbitrarily define aggregate properties without defining the properties of the final mixture. He said a frequent reason for discarding an aggregate was the lack of uniformity in grading.

When his attention was called to specifications which require all crushed material, or a large percentage of crushed material, such as those of the Civil Aeronautics Administration, Mr. Gray said he did not believe that attempting to control results by specifying the percentage of crushed material would serve the purpose, and that eventually only the stability test would be necessary.

Fines in Sand

Mr. Wuerpel had brought up the subject of more fines in fine aggregate in his talk on specifications—even 2 or 3 percent through 100-mesh. This is an ever interesting and controversial subject with producers, and the discussion soon reverted to it, although it was to be the subject of the following day's round-table discussion.

Returning to the subject, on questions from the floor, Mr. Wuerpel said that he believed many plants could recover more fines if they tried hard enough and the engineer purchasers insisted on it. He said often small adjustments of the sand-settling devices would accomplish the purpose. Usually the operator was attempting to handle too much water.

While fines are more necessary in lean mixes than in richer mixtures, Mr. Wuerpel said they served a definite purpose in any mixture, by avoiding the necessity of using an excessive amount of cement, which he described as the most unstable factor in the hardened concrete, in a volumetric sense at least. He thought a fineness modulus for the fine aggregate should be established between 2.55 and 2.75, and having been established should be adhered to \pm or -0.1 percent. One producer insisted that the fines just can't be found in some river gravels.

IRVING WARNER, vice-president,



John D. Gregg, Whittier, Calif., to the left, and Alexander Foster, Jr., The Warner Co., Philadelphia, Penn., right

Warner Co., Philadelphia, Penn., brought up the very pertinent question: "When does fine sand become silt?" He said that through his own experiments he had found that in material below 325-mesh the percentage of silica decreased rapidly. To this question Mr. Wuerpel admitted that the decantation test loss would have to be raised to 3 percent. Quoting from experience on a Mississippi River job, when using water containing a high percentage of silt, he said the concrete was better than when clearer water was used. Hence he believed silt as —100-mesh material was all right.

Mr. Warner said that while he thought the use of more fines was in the right direction, there were still many users not educated to accept them, therefore the producer must be prepared to take them out of his sand as well as to leave them in.

Asked about sand made from crushed gravel, Mr. Wuerpel was non-committal, saying that while he had used crushed stone sand, he had had no experience with sand made from crushed gravel.

Discussion on Specifications

FRED. D. COPPOCK, president, American Aggregates Corp., Greenville, Ohio, which operates plants all through Ohio, Michigan, Indiana, and has had experience in the South and on Long Island, expressed the opinion that tighter specifications for aggregates were a good thing. He thought all producers could make enough fines if they really tried, although it required constant vigilance because deposits vary and the same deposit varies from day to day. ROBERT J. POTTS, president, Potts-Moore Gravel Co., Waco, Tex., insisted that Texas gravel deposits simply did not contain these fines.

Stanton Walker expressed the opinion that the tendency to demand more fines was going too far; he thought it was a mistake to demand considerable percentages of —100-mesh in the sand; that was not the place for it; if this —100-mesh material was highly important to the concrete mix it could be added separately as another ingredient. He added that experience with Vinsol resin cements might remove the need for the super-fine aggregate.

Mr. Wuerpel, who has been a leading advocate of the use of Vinsol-resin cements, said that while it was true we could get non-bleeding concretes from their use, that this was no argument for using them in lieu of fine aggregates containing more fines. He insisted that in all stream-deposited gravels, fine sand would be found in places. He again emphasized that the main objective in using more fines was to reduce the amount of cement required for workability.



Eric Ryberg, Utah Sand & Gravel Co., Salt Lake City; Nathan C. Rockwood, and Irving Warner, The Warner Co.

Sand Classification

The matter of controlling gradation of fine aggregate came up for more discussion at the session on the following day.

F. D. COPPOCK described in some detail the device for fine sand classification installed at the Metropolitan Sand and Gravel Co. plant at Port Washington, L. I., which apparently has been changed considerably since the original installation described in the February, 1943, issue of Rock Products. Mr. Coppock said that in practice they had found that the use of relatively small single units of cone settling devices would not still the flow of water-carrying the fine sand sufficiently to drop the fine sand, when the volume of water necessary for thorough washing was used. To overcome this difficulty they attached a series of cone classifiers, or settling tanks, to the bottom of a single large rectangular tank 16- x 24-ft. The depth of water over the cones is about 2 ft. By means of adjustable baffles in this tank the operators are able to control the velocity of the current through various partitions of the tank and hence the fineness of the products in the cones underneath, which either are discharged continuously, or by hand-operated valves. It is this device that takes the overflow from the Dorr classifiers described in the Rock Products article. The sand has to be pumped from the classifiers to the large tank. This method permitted the use of less water in the classifiers, but more in the settling tank, which handles 1/10-in. sand down to 100-mesh. One of the Michigan plants of the American Aggregates Corp. is to employ the same device.

Mr. Coppock also referred briefly to his company's temporary operation on the Tennessee River for the

T.V.A., in which it was necessary to remove a surplus of 30- to 40-mesh material. This operation was described in Rock Products, June, 1937, by the late Frank M. Welch, then chief engineer of the American Aggregates Corp. Mr. Coppock said his company was experimenting with a gravity separation process, by shooting a stream of water into gravel to force the low gravity material over a weir.

In answer to questions, Mr. Coppock said that the sand from the cones (at the Metropolitan Sand and Gravel Co. plant) contained about 70 percent water, and the capacity of the plant as a whole was about 400 tons per hour, with 60 percent of it sand.

On the subject of railway ballast, Mr. Coppock said there was a tendency to require a constantly increasing percentage of crushed material, but that he was convinced crushed gravel ballast fouls more readily than uncrushed gravel.



Left: Mrs. Claude L. Clarke, wife of the secretary, Ohio Ready Mixed Concrete and Ohio Sand and Gravel Associations; right: Mrs. A. W. Kimmel, Dayton, Ohio, wife of A. W. Kimmel, Ready Mixed Corporation at Ohio luncheon

Gravel Foundation Courses

WITH PAUL, P. BIRD, past-president, presiding, the main theme of the January 26 morning session of the convention of the National Sand and Gravel Association was the New England practice of using gravel or crushed stone (granular) foundation courses under all types of pavement surface, together with other devices for adequate drainage. This is a subject Rock Products has been agitating since the October issue, so most of the producers present were fairly familiar with it.

STANTON WALKER, director of engineering of the Association, started the discussion with a summary of his laboratory test results on a variety of gravel aggregates for concrete, which prove that those with relatively high absorption are not necessarily poor aggregates. Drying out before use, or use in concrete that has a chance to dry out, or stay dry, apparently makes a great difference in the ability of the aggregates and the concrete made from them to resist freezing and thawing.

R. W. COBURN, chief engineer, Massachusetts Department of Public Works, then described "Highway Construction Practices in Massachusetts with Particular Reference to Construction of Granular Bases." He explained that in Massachusetts practice has never departed from that based on the conviction the pavement foundation is more important than the character of the surface, except in one instance, in the early days of cement concrete pavements, when the engineers accepted the cement salesman's argument that a concrete pavement needed no special foundation course. This experience was enough to avoid any further acceptance of this erroneous theory, for the pavement failed quickly.

Mr. Coburn then explained the specifications for pavement foundations, which do not vary much from those of the Rhode Island State Highway Department which were published in detail in the January issue of Rock Products, so no attempt will be made to repeat them here. He said the foundation for the pavement often costs more than the pavement, but that it was always a good investment.

Bank-run gravel foundations have largely replaced stone foundations, which in early practice on macadam roads often consisted of large, placed pieces of rock, or so-called Telford foundations. He gave five reasons for the use of these granular sub-bases: (1) They reduce or rather spread the pressure on the sub-grade; (2) form a blanket between the sub-grade and the pavement; (3) prevent the rise of capillary

water; (4) prevent holding free water; (5) reduce damage from freezing and thawing.

Under cement concrete pavement, after their first experience with undrained subgrades, 6 in. of gravel foundation was tried first, but it was soon discovered that at least 12 in. was necessary for best results. Often, in soft places, as in Rhode Island practice, more than 12 in. of gravel is used.

Mr. Coburn went into the extra cost of the concrete pavement because of the extra foot of excavation and the cost of the gravel, placing and rolling it, with the result that this extra cost is about 22c per sq. yd. of pavement for 12 in. of gravel foundation. He said the extra cost of an additional inch of concrete was 21c per sq. yd.; and, as to the choice of a 6-in. concrete pavement with a 12-in. gravel foundation and a 7-in. concrete pavement without the gravel foundation, there should be no doubt in any highway engineer's mind. More than that, he had found that bituminous surfaces on good gravel foundations, even under heavy traffic, required no greater maintenance cost than concrete pavements.

OTTO CONRADES, president, St. Louis Material and Supply Co., St. Louis, Mo., said he had always looked on drainage of the roadbed as more important than the physical character of the aggregates, but he had had difficulty convincing Middle West highway engineers, although they had now begun to take more interest in drainage.

The discussion then centered on what effect the cost of the gravel would have on engineers' plans to use or not to use it in foundation courses. Mr. Coburn admitted that roadside gravel deposits were plenti-

ful in New England, that in Massachusetts the contractor supplied the gravel from nearby sources, and that it cost an average of 47c per cu. yd. spread on the sub-grade, which of course would be a very low price for commercial material.

One of the subjects discussed at this session was ways and methods of getting rid of so-called soft particles of coarse aggregates, and separation of sand from unsound aggregates of chert or similar material. In introducing the subject Stanton Walker acknowledged that Nathan C. Rockwood, of Rock Products, had long been "needling" him to get mining engineer specialists to discuss the possibilities of using ore-dressing methods, and accordingly he had invited some representatives of the American Cyanamid Co. to describe the sink and float method, now extensively used in concentration of iron ore.

S. A. FALCONER and G. B. WALKER of the American Cyanamid Co., New York City, with the help of a blackboard sketch, then explained briefly the device their company had developed for flotation of iron ore in a heavy medium composed of a suspension of ferro-silicon in water. With this device separations of solids having only 0.02 difference in specific gravity can be made. Iron ore can be treated for about 6c per ton, not including the installation cost, which called for an investment of about \$80,000 for treating 200 tons per hour. The difference in specific gravity between the iron ore and the gangue is about 0.1. About 100 c.f.m. of compressed air is required to remove the concentrate. The speakers thought that in the case of gravel a less costly medium than ferro-silicon could be used, say pulverized magnetite. Most of the medium is recovered and used over and over again.



Frank Kelly, Colonial Sand & Stone Co., New York City, left, with Wm. Elliott, Department of Public Works, New York City

Labor Relations and Manpower Problems

Survey to be made of sand and gravel
and ready mixed concrete labor agreements

J. RUTLEDGE HILL was the presiding officer at the joint meeting of the National Sand and Gravel and National Ready Mixed Concrete associations on Thursday, January 27.

EXECUTIVE SECRETARY V. P. AHEARN told about the progress of the quarterly survey by the two associations of wage, hour and collective bargaining practices in the sand and gravel and ready mixed concrete industries which is about to be inaugurated. The purpose, he said, is to give these industries a place to which they can go for reliable information about wage and hour practices. Mr. Ahearn said that a step should be taken toward job classifications within the industry. In the matter of the "Little Steel" formula, he pointed out that while it presumably entitles a group of employees to a 15 percent increase in wage rates as compared with the level in effect January 1, 1941, it is not an automatic right and the case must be approved by the government. Escalator clauses in wage contracts, providing for automatic increases in wages based on a cost of living index, are out for the duration and any increase must be approved by the War Labor Board.

Turning to the 40c minimum wage order, Mr. Ahearn said that the order, of course, does not apply to members who are not engaged in interstate commerce. With reference to hours of work, he said that a daily limitation should be avoided; a weekly limitation is more realistic. However, it is different under the Walsh-Healey Act that does have an 8-hour limitation, but so far as possible, the industry should think in terms of a weekly work limitation. Generally holidays are specifically mentioned in contracts, and time and a half is usually paid; in some cases, double time. Sundays are in the same category as holidays, except under Executive Order 9240, you can't pay a man double time for work done on Sunday unless that Sunday is the seventh consecutive day worked in the same week. Paying for reporting time is a reasonable provision.

In the matter of union recognition, Mr. Ahearn said that it seems the two industries generally back into collective bargaining contracts through the boycott technique. However, it does not mean that the employer must surrender everything in a contract by blindly signing pro-



Mr. and Mrs. Stephen Stepanian, Arrow Sand & Gravel Co., Columbus, Ohio, entertaining guests after Mr. Stepanian was elected president of the National Ready Mixed Concrete Association convention in New York City

posals by unions. Be sure that you retain, for example, the right to select your own men, he said. Union agreements also should exclude supervisory and office personnel, and if possible, night watchmen. Some employers violate the whole spirit of the National Labor Relations Act by requiring their employees to join a union selected by the company.

Having accepted the inevitability of a contract, the employer should have something to say about the renewal of that contract. Many like the automatic renewal provision as it protects the right to serve 30 days' notice of an intention to seek a change. While seniority in contracts is here to stay, the contract also should stipulate that physical ability and competence must be considered.

Secretary Ahearn said that labor contracts should be expressed in clear and simple language. Collective bargaining, he said, should not be delegated to lawyers. The function of the lawyer is to advise and counsel, but bargaining must be done by an operating man, preferably the principal executive.

In the discussion which followed, the question of rehiring service men was brought up by Mr. Hill. Secretary Ahearn replied that this was a statutory obligation, and the man had to be rehired regardless of any wage contract. In the matter of seniority rights, brought up by Mr. Coppock, he replied that seniority rights

of employees are protected while they are in the service. Alexander Foster, Jr., said that some of the unions insist that employee's seniority rights while he is in the service should be retained.

War Labor Board Procedures

RAYMOND S. SMETHURST, counsel, National Association of Manufacturers, addressed the convention on the procedures of the National War Labor Board. He said that the basic framework of wage stabilization was established with the Stabilization Act of October 2, 1942, which authorized the President to stabilize wages at levels existing on September 15, 1942, but Congress made two exceptions in the Act which have produced administrative difficulties. The difficulties have arisen over the part of the statute which authorizes the President to make adjustments in wages "to the extent he finds it necessary to aid in the effective prosecution of the war or to correct gross inequities." From this has arisen all the volumes of regulations and rulings.

There are 12 major types of wage or salary increases sanctioned by the law and regulations, said Mr. Smethurst, but they require actual approval or compliance with definite conditions. These are: (1) 15 percent increases to correct maladjustments; (2) elimination of substandard wages or salaries; (3) to correct gross inequities; (4) aid in effective prose-

cution of the war; (5) for a promotion; (6) for recognition of merit; (7) length of service; (8) equalization as between male and female workers; (9) an increase up to 40c or the 50c limit where state laws prevail; (10) increases for piece work; (11) apprentice plan increases; and (12) vacation and bonus payments.

In the discussion which followed, Bruce Campbell of Towson, Md., expressed the view that the W.L.B. would have no authority after the

war. Mr. Smethurst, in response to a question, recommended that labor cases be taken before a tripartite panel rather than to arbitration as it would assure better consideration of the case.

At the close of this meeting, President Otto Conrades turned the gavel over to the incoming president Robert Mitchell of Los Angeles, Calif., who adjourned the meeting after complimenting the association staff for a job well done.

Manpower Problems

W. W. DENNIS, secretary, Rock, Sand and Gravel Producers Association of Northern California, San Francisco, started the panel discussion on manpower problems by telling about the experiences of the producers in this area. In the San Francisco Bay area, industry is all operating under what is known as the West Coast Manpower Control Program due to the scarcity of labor. It was designed to control absenteeism and labor turnover.

This program operates along two lines: one, by controlling the letting of contracts for future production in the affected areas; and two, controlling the movement and utilization of manpower. Under a directive of James F. Byrnes, Director of War Mobilization, temporary ceilings were established covering all employers of more than 50 persons. In other words, the highest number of persons on a payroll on any one day during the month of October, 1943, constituted the ceiling for total employed personnel. When the number of employees falls below that ceiling, an employer may hire women only as replacement. The highest number of male persons in your employ who were on the payroll on the same day less 10 percent of the said number constitutes an employer's ceiling on male employees. Male employees may be hired as replacements only after the number of male employees drops below that number, and then only upon presentation of a War Man Power Commission clearance and specific referral to him as a hiring employer. Referrals are made in accordance with the applicable priorities as established on advice from the War Manpower Priorities Committee and Northern California Labor Management Committee.

As any contracts for construction or munitions "dried up," the employees released went into a pool and the War Manpower Commission and the United States Employment Service became the directors of labor. Mr. Dennis cited the case of one ready mixed concrete plant which had an order for 25,000 cu. yd. of concrete for an octane plant which has a very

high priority. It was necessary to obtain six or eight additional men to handle this job, and the men were only secured through an application with the Petroleum Administrator for War who was a member of the War Manpower Priorities Committee.

It was soon discovered that to have the proper standing before the Priorities Committee it would be necessary to have the entire industry in this area declared to be essential to the war effort. This order was obtained from the War Manpower Commission. Mr. Dennis said that the Los Angeles area had been fortunate in avoiding the situation which developed in San Francisco by putting in a voluntary plan for utilizing the available labor to best advantage.

Labor in the South

HERBERT JAHNCKE of New Orleans presented a picture of the labor problems of the Southern States. While the manpower problem is somewhat less acute in this section of the country, said Mr. Jahncke, there is an acute labor shortage in some coast cities where shipbuilding is a major war industry and these areas have been classified in Group 1 by the War Manpower Commission. New Orleans is in Group 2. In most inland sections of the South, the problem has not become acute except in a few large cities. Production of sand and gravel in the South is almost exclusively in rural areas, and ready mixed concrete producers are confined to the larger cities. Drafting of able-bodied workers and the shift of the better class of labor to higher paying war industries has affected some sand and gravel operations, but most of the plants have had no difficulty in filling orders. However, the ready mixed concrete producers have the same manpower problems as the Eastern and Northern operators which is further aggravated by the low wage scale paid in most instances. Many southern operators have been paying wage scales not greatly in excess of the minimum set by the Wage and Hour Law, and with wages frozen they find it almost impossible to compete for labor with

war plants. Labor turnover, particularly truck drivers, has been high, and trucks and mixers are in constant need of repair. Owing to the falling off in demand for materials with completion of many construction projects, the industry has been able to meet demands although the labor problem has become more acute.

Most operators, said Mr. Jahncke, have reported the loss of from 10 to 15 percent of their employees to the armed services. Wherever possible, these men have been replaced with 4F's and older men. Difficulties have been experienced in holding white collar employees who can get higher wages from war industries. The negro problem also has become more acute in the South since higher wages have been paid.

Labor in the East

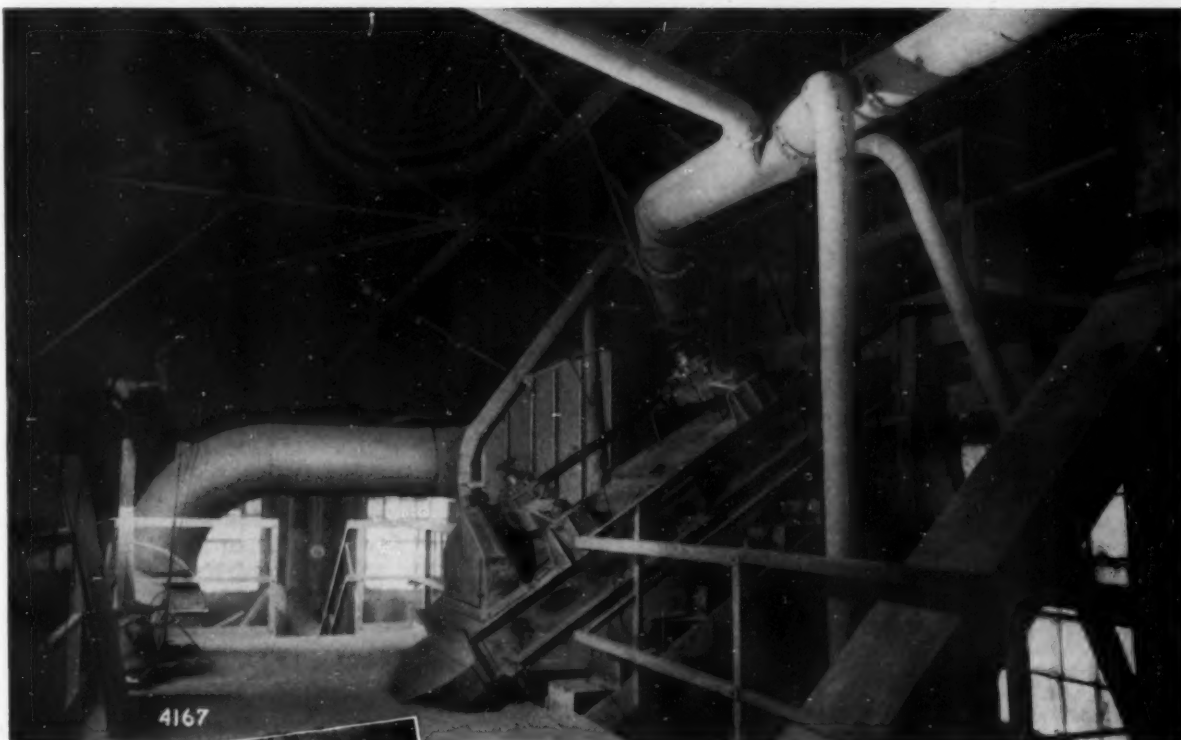
RAY V. WARREN of Pittsburgh, Penn., spoke specifically of conditions in Pennsylvania, but the situation is somewhat typical of the eastern section of the country. In the Pittsburgh area, said Mr. Warren, producers have not faced a critical manpower shortage because the wages are comparable to the wages paid in the steel mills and the industry has not had the problem of the United States Employment Service offices calling its men and directing them to get into other industries.

Discussion

Executive Secretary Ahearn asked Mr. Warren and Mr. Jahncke to comment on the draft board attitude toward employees in the industry. Mr. Warren said that no deferments had been asked for except in the case of two dredge operators, but most of the men are older employees not subject to the draft. Mr. Jahncke said that his company was looking forward to a very good volume of business this year, but his company had not attempted to secure deferments, except a few key men.

BRUCE CAMPBELL of Harry T. Campbell Sons Corp., Towson, Md., asked about the number of hours of labor that Mr. Jahncke's men worked at 55c an hour. He replied that many worked up to 60 hours. Mr. Warren said that the men in his area also had obtained considerable overtime, the average in one garage running as high as \$3,200 in wages for the year. The wage in Pittsburgh is 93c an hour, but it was decided to work the men over-time rather than bring in a new driver. Mr. Campbell said that his men get 65c an hour, but the weekly wages ran from \$45 to \$72 a week.

G. W. GARRETT of Kansas City brought up the question of jackhammer men in the mines and truck drivers, making up to \$3200, who are now seeking an additional raise in spite of the "Little Steel" formula.



● In center foreground is a Tyler-Hummer vibrating screen with dust pipe connection at lower end.

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Employee Pension Plans

HAL OWENS pinch-hitted for JOHN PRINCE, who was unable to be present, in presiding over the Thursday morning session which was a joint meeting of the National Sand and Gravel Association and the National Ready Mixed Concrete Association.

DAVID A. GASKILL of Thompson, Hine and Flory, Cleveland, Ohio, led off the Open Forum on Taxation Problems, with his address on Employee Pension Plans. Pension plans involve federal income and excess profits tax problems.

Mr. Gaskill pointed out that a pension plan meeting the requirements of the revenue laws permits a tax deduction to the employer in the year when the contribution is made, but does not require the employee to pay individual income tax until later years when their pensions are received. At that time the employee will probably be retired and his income may be reduced with the result that the pension may then be taxed at a lower rate.

There are two general types of pension plans. The first and most prevalent type of pension plan involves the use of the so-called pension trust in which the employer makes contributions to the trust and the pension liability is funded either by the purchase of annuities or retirement income policies from insurance companies, or by the investment of the trust funds in securities. The second type of plan is based upon the purchase of annuities from an insurance company for all employees covered under a single group annuity contract.

There are two types of insurance contracts. First, there is a retirement annuity contract which is paid for year by year and which, at the time of the employee's retirement age, will produce the desired life annuity. The second type of contract is an insurance policy, the issuance of which is conditioned upon the ability of the employee to pass a physical examination. Mr. Gaskill observed that in most cases, the employer selects insurance contracts in preference to pure annuity contracts although the insurance contract form is slightly more expensive.

In setting up these pension plans, Mr. Gaskill cautioned the industry to comply with the provisions of Section 165 of the Internal Revenue Code. This section states that the plan must not "discriminate in favor of employees who are officers, shareholders, persons whose principal duties consist in supervising the work of other employees or highly com-

pensated employees. Section 165 states that the trust may be considered as meeting the requirements of the section if it benefits either: 1. Seventy percent or more of all the employees; or 2, eighty percent or more of all of the employees eligible to benefit under the plan, if seventy percent or more of all of the employees are eligible. In making that computation, employees who have been employed not more than five years and also certain part-time employees may be excluded.

Excess Profits Tax Law

WILLIAM E. HAYES, of Hayes & Hayes, Washington, D. C., gave his analysis of Section 222, Revenue Act 1, which provides conditions under which claims can be set up for refunds on excess profits. Mr. Hayes pointed out that the claimant must show an inadequate standard of normal earnings in the base period, 1936 to 1939 to support his claim. Due to the complexities of such claims it is planned to set up a statistical bureau in Washington, D. C., to examine into statistics of industries as a board of review of claims.

WILLIAM EDWARD HOLE, American Aggregates Corporation, Greenville, Ohio, discussed Section 722 as it relates to depressed earnings, and Section 735 of the Internal Revenue Code dealing with mineral deposits and timber stands.

Mr. Hole described a hypothetical case in determining excess mineral output as compared with base period, 1936 to 1939. Using 200,000 tons production annually from a deposit as the average, a company produced 300,000 tons in 1942. Assuming 20c per ton profit, the 100,000 tons excess produced a profit of \$20,000. If the remaining tonnage in the deposit is assumed to be 1,000,000 tons, the credit would be 20 percent of \$20,000 or \$4000.

Open Forum Discussion

G. W. GARRETT, Stewart Sand & Material Co., Kansas City, Mo., asked Mr. Hayes whether the drouth conditions in Oklahoma and Kansas in 1935 and 1936 could be cited as a claim in changing the base period earnings. Mr. Hayes expressed the view that this may be recognized but no decision had yet been made in the federal tax court on this question.

EXECUTIVE SECRETARY V. P. AHEARN asked Mr. Gaskill whether deductions for pension plans carried in two years of high bracket earnings and then dropped would be allowed. He replied that they probably would not be allowed. Another question asked

was whether it is necessary to get approval of War Labor Board or Salary Stabilization Board. Mr. Gaskill said that profit sharing trusts have not been allowed by Salary Stabilization Board unless they are payable at death or retirement.

T. E. POPPLEWELL of Ft. Worth, Texas, asked Mr. Hole about the problem in defining his own gravel deposits, which involves some developed properties and some not developed, to determine credit for deposit depletion. These properties, in an area three miles wide and 11 miles long, are held in various forms of title and possession. Mr. Hole expressed the opinion that each property would be considered an entity in itself for relief.

Fair Labor Standards and Walsh-Healey Acts

L. METCALFE WALLING, Administrator, Wage and Hour and Public Contracts Divisions, U. S. Department of Labor, in his address reviewed the work involved in establishing seasonal exemption for northern producers of sand and gravel and crushed stone. He then launched into the negotiations which led up to the 40c an hour minimum wage order now effective for the industry. Mr. Walling urged every company to maintain as high a wage level as possible to sustain a higher level of prosperity in the post-war era. "Your industry," he said, "and all of construction, is going to have a post-war boom. You all know that. The plans of private industry, pent-up demands for new homes, all the plans of government; local, state and federal, all point the same way. Since the last war you have been through the most violent swings—high boom, followed by deep depression and everything in between. You have not had tops in a war boom now, to put it mildly. After this war, when this next boom comes, don't you want it to last? It won't be more than a first false breath of spring in February if in the days of demobilization wages are slashed down to rock bottom so people can't buy your product."

Discussion

ROBERT MITCHELL, president of Consolidated Rock Products Co., Los Angeles, Calif., raised the question as to deliveries of construction materials to oil companies being considered interstate commerce. Local ruling that the materials did enter into interstate commerce is contrary to the interpretation given from Washington.

EDW. HOLE of American Aggregates Corporation suggested that a statute of limitations on suits for wage claims under the Fair Labor Standards Act should be enacted.

(Continue Convention Proceedings page 75)

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CONFERENCE PROGRAM — PAGE 61

ESSENTIAL FARM BUILDINGS — PAGE 62

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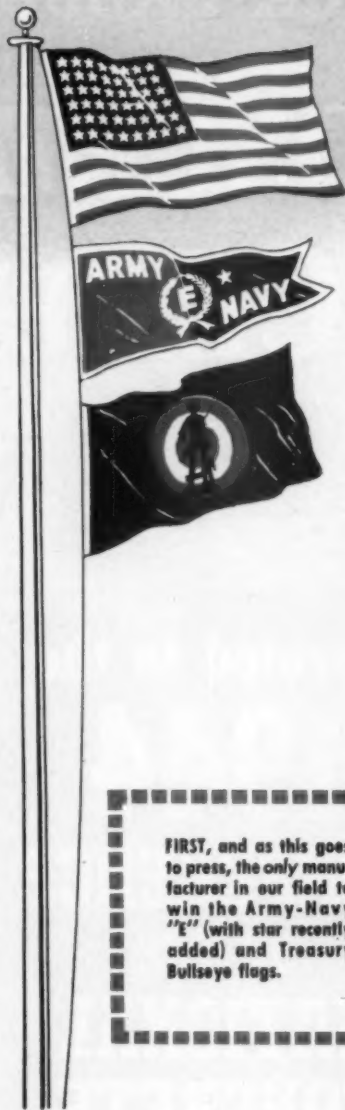
** Stearns pioneered the development of mass production of concrete masonry units by vibration.

The same engineering and productive ability, rewarded by the government for excellence, continues to lead in the creation of revolutionary machinery for this field. Today, fresh from the boards and field tested, our 1) *Automatic Power Carriage Drive* and 2) *Power Offbearer* are making new and impressive cuts in the cost of labor—eliminating waste motion and green block breakage.

More important developments are on the way—developments that will place all Stearns customers in an enviable "Pay-off" position.

Stearns can and does supply equipment for *necessary* construction work . . . and continues to give present and prospective customers the full benefit of an experienced dealer organization whose mature judgments are of inestimable value to every producer of concrete products.

What is your pressing need?



FIRST, and as this goes to press, the only manufacturer in our field to win the Army-Navy "E" (with star recently added) and Treasury Bullseye flags.



The Home of
STEARNS

—pioneers in the design and manufacture of the world's finest concrete products plant machinery.

STEARNS

MANUFACTURING CO. - ADRIAN, MICH.

GENE OLSEN, PRESIDENT

Manufacturers of Joltcrete (vibration type licensed under the original Gellman vibration patents) and Clipper Stripper (tamp type) block and brick machines . . . Mixers . . . Skip Loaders.

NATIONAL CONCRETE MASONRY ASSOCIATION

Annual Meeting, Hotel Sherman Chicago, Illinois

MONDAY, FEBRUARY 14, 1944

10:00 a.m., Directors' Meeting, Room 110

TUESDAY, FEBRUARY 15, 1944

1:00 p.m., Business Session, Louis XVI Room
(Reserved for Concrete Masonry Unit Manufacturers)

Presiding, Walter J. Manhardt, President
Address of President
Report of Executive Secretary
Report of Nominating Committee
Election of Directors

2:00 p.m., General Session, Louis XVI Room

Outline of Construction Prospects for 1944—Carl F. Clausen, Chief, Non-Metallic Minerals Section, Building Materials Division, War Production Board, Washington, D. C.

The Platform for Postwar Construction and Means by Which It May Be Put into Action—Russell C. Creviston, General Chairman, Postwar Committee, Producers' Council, Chicago, Ill.

What the Concrete Masonry Unit Manufacturer Can Do to Insure Adequate Recognition in Postwar Planning for His Community—W. D. M. Allan, Director of Promotion, Portland Cement Association, Chicago, Ill.

Modular Planning—Its Relation to the Concrete Masonry Unit Industry—Frederick Heath, Jr., Chairman, Producers' Council Subcommittee on Modular Products, Toledo, Ohio, and M. W. Adams, Secretary, Modular Service Association, Boston, Mass.

How to Use Washington Representation to the Best Advantage—W. L. Fuller, Eastern Manager, National Concrete Masonry Association, Washington, D. C.

Reception

After adjournment of this session all present are invited to a social session in the Crystal Room. Here is the opportunity for the officers to meet with you and where you can contact some of the fellows you especially wanted to see. Light refreshments will be served with the compliments of our Associate members.

7:30 p.m., Meeting of New Board of Directors, Room 110

WEDNESDAY, FEBRUARY 16, 1944

10:00 a.m., Divisional Meetings
Celocrete—Presiding, Jay C. Ehle, Room 102

Cinder—Presiding, E. S. Rowzee, Grey Room

Haydite—Presiding, Walter J. Manhardt, Room 114

Superock—Presiding, John S. Bailey, Room 116

Waylite—Presiding, Harold L. Spaight, Room 118

Heavyweight—Presiding, Benjamin Wilk, Room 104

These divisional meetings are intended to provide a meeting place for manufacturers employing various aggregates where problems of specific interest may be discussed on common ground.

12:30 p.m., Luncheon, Louis XVI Room

All are invited to attend luncheon. W. G. Kaiser, Manager, Cement Products Bureau, Portland Cement Association, will outline the "Food Fights for Victory" campaign. A new motion picture illustrating the part played by concrete masonry units in this campaign will be shown.

2:00 p.m.

Presiding, John L. Strandberg, Chairman of the Board

PART I—New Conceptions of Plant Layout and Production Methods for Efficient Operation: The Detroit Concrete Products Association has made an intensive study of plant layout design. Individual manufacturers have contributed the best ideas each has learned from long experience. Machinery manufacturers and other competent authorities have been consulted. All of this material will be presented in the form of a symposium divided into sections on cement and aggregate, mixing, machine room, curing, handling, yarding, etc. This part of the program will be in charge of the Detroit Concrete Products Association and it is expected that all present will take an active part in the discussion.

PART II—Round Table Discussion of Operating Problems and Workable Methods Employed Toward Solving These Problems. Manufacturers will outline methods adopted to maintain working forces. Discussion will be led by producers who have employed a variety of methods to keep the wheels of their plants turning. Other interesting subjects will be presented. All in attendance urged to contribute their experiences.

THURSDAY, FEBRUARY 17, 1944

10:30 a.m., General Session, Louis XVI Room
Presiding, E. W. Dienhart, Executive Secretary
New Standard Building Code for Masonry Construction Sponsored

by National Bureau of Standards and American Standards Association—Paul M. Woodworth, Director, Research and Development, Waylite Co., Chicago, Ill.

Discussions by Washington officials of U. S. Government in charge of departments related to our industry:

War Production Board—Edmund H. Brooke, Chief, Concrete Products Unit, Building Materials Division, Washington, D. C.

Office of Price Administration—Fred C. Bamman, Head, Cement and Concrete Products Unit, Building Materials Branch, Washington, D. C.

War Manpower Commission—J. Bradley Haight, Chief of Manpower Allocation Division, Bureau of Placement, Washington, D. C.

Office of Defense Transportation
2:00 p.m., Meeting of Board of Directors, Room 110

Cast Stone Program

THE CAST STONE INSTITUTE will hold its annual convention simultaneously with the convention of the National Concrete Masonry Association but the meetings will be at the Bismarck Hotel, Chicago, February 14 and 15.

On Monday morning, February 14, there will be a presentation on Glastone followed in the afternoon by an inspection of jobs, and in the evening by a discussion on franchises. The Monday afternoon session also will be devoted to an exchange of ideas and a discussion of different methods of joist production.

Tuesday morning will be devoted to consideration of various precast concrete specialties now in production and others in process of development. This session also will consider the position of architectural cast stone in post war construction. On Tuesday afternoon cast stone manufacturers will attend the session of the National Concrete Masonry Association at Hotel Sherman at which the chairman of the Producers' Council Post-War Committee will speak on the plans for post-war construction.

On Tuesday evening the annual business meeting of the Institute will be held, and Managing Director, C. G. Walker advises that decisions will be made upon a number of exceedingly important matters of policy and procedure.

"Food Fights for Freedom"

Concrete products manufacturers have a golden opportunity to capitalize on the federal "food for war" program



All buildings on William B. Meloney farm, Hamburg, Conn., constructed with concrete products furnished by Hamden Building Tile Co., Inc.

"Food for War" program, sponsored by the government in its drive to break all food production records, has focussed attention upon farm buildings. Peak production cannot be attained without adequate storage buildings to accommodate crop increases, to shelter and preserve crops, and to protect farm animals and equipment.

Agricultural experts have claimed as much as 25 percent of many crops is lost each year through spoilage due to improper housing for grains and animals. The production of eggs, milk and other farm products is reduced comparably when farm structures do not afford proper protection from the weather and diseases.

There exists a tremendous market for concrete masonry units for farm building construction in the post-war years, which can be developed during 1944 while cooperating with the government's present program in furnishing concrete masonry for essential farm building construction now.

About 380,000,000 acres of land will be planted in 1944—16,000,000 more than in 1943—which will necessitate the modernization of many existing farm buildings and the building of essential structures to store and preserve crops. The War Foods Administration has given its approval to the construction of needed buildings and the repair, maintenance and conversion of existing structures. The repair and maintenance of farm structures is included in the overall farm repair program endorsed by the government.

Size of Market

The general run of farm structures are out-of-date and many are in serious condition. Since the depres-

By BROR NORDBERG



Agricultural engineers constitute a board of strategy on a fighting front from which there can be no retreat.

Farm structures are war factories, fighting equipment. Every improvement which helps the farmer increase production means a gain on the fighting front.

Many essential facilities which save labor for the farmer, help him produce and preserve more food, can be built of concrete without the use of critical materials. Such necessary improvements as sanitary milk houses, concrete dairy barn floors, paved barnyards and feeding floors or feeders, ratproof storehouses are more important than ever before.

Our engineers, backed by facts gained from years of scientific research and field experience with farm uses of concrete, are ready to help you on any concrete farm building design or construction problem.

PORTLAND CEMENT ASSOCIATION

Dept. A13-1, 33 W. Grand Avenue • Chicago 10, Illinois

A national organization to improve and extend the use of concrete through scientific research and engineering field work.

The emblem shown above has been officially approved by a committee cooperating with the War Food Administration. It is reproduced here in the interest of the "Food Fights for Freedom" Campaign.

* Buy More War Bonds *

Emblem of War Food Administration emphasized in P.C.A. advertising

sion that followed World War I, the depreciation of farm buildings has been far in excess of construction and repair to maintain those buildings.

Farmers have been enjoying prosperous times and are prepared to invest some of their profits in permanent, firesafe buildings provided the materials are made available to them. Manufacturers of concrete products who have recognized that the farmer is in a buying mood are capitalizing on the natural advantages of concrete masonry in their selling and on the fact that no priorities are required in utilizing non-critical concrete masonry. Selling arguments such as the fact that 500 to 700 barns alone are destroyed annually in Wisconsin by fire and wind is one to which the farmer is particularly susceptible.

Farm buildings have been neglected during the past two years because building materials have been scarce and there has not been a government program, but it now appears reasonable that farm construction can be resumed on a large scale while the war production program is tapering off.

The sizeability of the farm construction market is not fully appreciated by many because a single farm does not require much of an outlay for building materials. However, there are approximately 6,500,000 farms in the U. S. which had homes and buildings evaluated at \$10,405,000,000 according to the 1940 census. The average farm has in the neighborhood of eight buildings.

If 50 percent of the farmers repaired or rebuilt their buildings to the conservative amount of \$250 each,

Three types of farm structures which have brought a considerable volume of business to concrete products manufacturers

NEW MARKETS

the repair bill would approximate \$800,000,000, which is a mighty attractive market for the concrete masonry industry to shoot for. In spite of restrictions and the lack of a government program in 1942, the farmers spent \$665,000,000 for construction and even in the depression years they invested up to \$200,000,000 annually in structures. Authorities estimate that a four billion dollar construction program will be undertaken by the farmers in the first seven post-war years.

Essential Buildings

Essential buildings are hog houses, poultry houses, milk houses and barns, principally, all of which lend themselves to construction, utilizing standard concrete masonry units and fractions, lintels and sills. The Portland Cement Association has made some revealing breakdowns to show how many standard 8x8x16 in. concrete masonry units are required for various types of essential farm buildings, based upon numbers of farm animals to be accommodated. The requirements, calculated for minimum spaciousness, are four units per hen for a laying house; 50 per sow for a farrowing barn; 40 per cow for a one-story dairy barn; and 10

per cow for a milk cooling house and tank. When applied to a single state, Wisconsin, the market would be 65,000,000 units based upon the as-

NO PRIORITY NEEDED



Build Fire-Safe With
WORTHCRETE
The Structural
Concrete Wall Tile
FREE Residential and
Farm Building
Booklets on Request

CHASE BUILDING PRODUCTS
2600 PINE ST.—FT. WORTH—3-3344

Sample of a small newspaper advertisement, directed to farmers, which pulled excellent returns

sumption that 50 percent of the buildings would be rebuilt.

The Portland Cement Association has anticipated the potential farm market and has designed plans for various farm structures which are being used with very favorable results by concrete products manufacturers who desire to develop farm markets to take the place of war construction projects which have been completed.

Several of the designs are reproduced herewith. The drawings are not intended to be final working drawings but are typical designs that are useful in making a final working plan to be adapted to local conditions and particular applications. These drawings are made available with the suggestion that the designs be reviewed by local agricultural agents and state universities and be adapted to local conditions.

The Portland Cement Association has available an excellent folder, "Let Concrete Masonry Help You Increase Production of Food," which is available to concrete products men for their promotion purposes. Folders contain designs, photographs and technical data relative to the construction of farm buildings. They have two blank spaces to provide for insertion of the user's advertising message and package price.

Merchandising

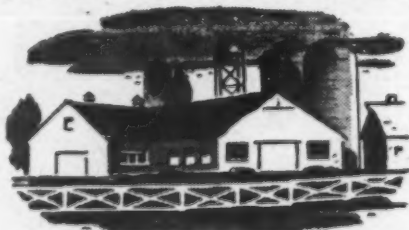
Metropolitan producers as well as those located in rural areas might well consider the farm building construction market since it is probably practical to operate over a radius of 100 miles or more.

(Continued on page 68)

**BADGER
BLOX**

NON-CRITICAL
... FIREPROOF

Materials for Farm Buildings



IN ARSENALS LIKE THESE THE WAR
CAN BE WON OR LOST

You can build with Badger Blox without priority, and
you can do it now.

Buildings Built
with Badger Blox

Are {
STRONG
DURABLE
FIREPROOF
RODENT PROOF
ROT PROOF

LEARN MORE ABOUT BADGER BLOX
Phone or Write for FREE Literature

Badger Concrete Co.

191 Marion Street

Phone 2545

CONCRETE

FARM IMPROVE-
MENTS ARE
AVAILABLE NOW

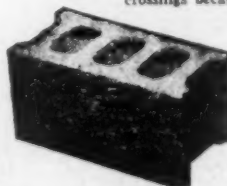


★ CONCRETE SEPTIC TANKS

These permanent, inexpensive improvements
will help modernize your farm. We'll deliver a
tank in the size you want . . . and place it
all ready for the connections.

★ CONCRETE PIPE CULVERTS

A size available for every need. Ideal for ditch
crossings because they're extra strong.



★ BADGER BLOX

FOR . . . a Milk House, Poul-
try or Hog Barn, Shed, Fruit
Cellar or Granary. When you
build with Badger Blox you
build for a generation. They're
fire, wind and rodent-proof.
Build now! No priority needed.

BADGER BLOX

Call at Our Office or Write for FREE Literature

BADGER CONCRETE CO.—191 Marion Street—Phone 2545

Typical advertising by Badger Concrete Co. which has been very effective in attracting new farm business for concrete products

No Relaxation of W.P.B. for Homes Until War Ends

IN A STATEMENT issued January 12th, Donald M. Nelson, W.P.B. chairman, said, "Construction has been curtailed during the last year. The entire situation was given full consideration at today's board meeting, and it was agreed that there must be no modification of the restrictions until we can be certain, from the course of the war, that such modification would not harm war production." Scarcity of lumber and the necessity of diverting construction labor to war industries were also given as reasons for deferring building, although there is now a surplus of steel.

Prepare Now for Building

H. K. FERGUSON Co., Cleveland, Ohio industrial engineers and builders have made a survey which indicates that building costs in the post-war period may be higher than they are now, and it is suggested that those who prepare plans early will build at the lowest prices. This survey expresses the view that by late summer the War Production Board will release more material items for civilian use, depending upon the war situation at that time. Although the country is "over-built" in total volume of factory floor space, this floor space is generally not located in the proper places for economical use.

Attack Concrete Bath Tubs

MANUFACTURERS of concrete bath tubs have expressed resentment through the Cast Stone Institute against the finding of the Public Health Service in a report to the War Production Board that "the resistance of concrete tubs to bacteria growth is inadequate." The Institute charges that somebody brought a third-rate concrete casting to the Public Health Institute for tests. Latest models of concrete tubs are made of a dense concrete, with a surface like a slab of marble. The National Bureau of Standards is now getting out specifications for concrete bath tubs which the Federal Housing Administration is ready to accept.

Launch "Concrete Warehouse"

CONCRETE SHIP CONSTRUCTION, INC., in southern California recently launched the first of a series of 24 concrete ships for use in the South Pacific as mobile warehouses for the army, each to have 2000 tons carrying capacity. Only 31 days from keel laying to launching was required.

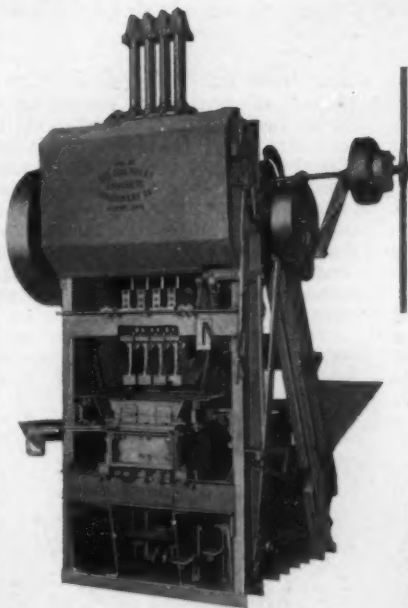
New Products Plant

THE LOWE AND BELL READY-MIX CONCRETE Co., Roseburg, Ore., has completed plant installations at its recently purchased site on E. Second avenue, South, and is now in production, according to the owners, Cecil Lowe and Buckey Bell. This plant has been busy pouring concrete for septic tanks for a big housing project.

We're Mustered in for Defense

But

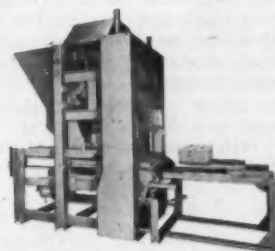
Multiplex Can Still Boost **YOUR** Block Production and Cut Your Unit Cost.



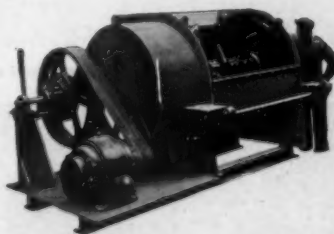
Here's a profit-and production headliner—the famous MULTIPLEX SUPER TAMPER with 8-bar tampers. It's designed and built to produce perfectly finished brick, tile or block units on a low cost and maintenance basis. Has positioned-timed feeding and stripping, and quick action 5-point clutches. Handles all kinds of aggregates, and produces 4 to 6 top quality units per minute. The Multiplex Super Tamper is engineered and built for a life-time of trouble-free service. If you are in a position to secure the proper Priority rating, it would be well worth your while to investigate the possibilities of this Super-Tamper.

THE MULTIPLEX CONCRETE
MACHINERY CO.
ELMORE, OHIO

Whether you want a single small unit or a complete plant, Multiplex makes the ideal equipment for every concrete products purpose. Write for booklet describing complete line of concrete mixing equipment.



Dual vibration of the MULTICO vibrates the concrete not only in the mold box but through the pressure head to the top of the block. This important feature allows top and bottom control of vibration timing, permitting wetter mixes with uniform distribution of water throughout the block. In combining variable vibration with tamping and pressing, the MULTICO produces units of any desired density or texture.



Multiplex Multi-Mixer with reverse screw-type action that insures fast and thorough mixing of every batch. Another feature of distinction, and one that lends itself to convenience in handling, is the side, end or bottom discharge. The Multi-Mixer assures you of every batch being of uniform quality. This, of course, will give an "assembly line" uniform product at all times.

MULTIPLEX

Service Builds Vault Business

Zeiser Vault Co. has shown substantial growth by manufacture of a quality product and by placing emphasis on service to funeral directors

CONCRETE burial vault manufacture is a specialized business, and it requires an entirely different selling technique than with other concrete products. Zeiser Vault Company, Nescopeck, Penn., organized in 1931, has concentrated on the concrete vault business and has built a successful enterprise as demonstrated by its steady gains and enlarged manufacturing facilities.

Like many concrete burial vault concerns, the Zeiser company is a family enterprise with John V. Zeiser and Mrs. Celesta J. Zeiser as owners

and Adlow Zeiser, the father of John Zeiser as consulting engineer. No small measure of the success of the company is attributed to Adlow Zeiser, one of Pennsylvania's oldest concrete engineers. Mr. Zeiser, senior, was in charge of concrete construction on the mammoth American Car and Foundry plant at Berwick in 1902 and since then has supervised the concrete work on many other important structures.

The first vault factory was a 12- x 48-ft. structure, and equipment included one inverted air seal vault

form. Since 1931 the plant has been enlarged until today it occupies a floor area 50- x 180-ft., and is equipped with nine vault forms. The company sells and services concrete vaults over a 75-mile radius. One of the most recent additions to plant is complete machine shop where repairs are made to all equipment.

Aggregates used in concrete vault manufacture are washed sand and gravel purchased locally which is dumped directly from trucks into bins in the mixing room. In this room is a 3½-cu. yd. Jaeger mixer. Concrete is moved by bucket traveling on a monorail system to the forms where it is placed by hand and mechanically tamped to secure a good bond with the steel mesh reinforcing.

After the concrete is sufficiently air-cured for handling, it is transported by means of a chain-operated hoist sling and overhead monorail to the curing room. Here the vaults are cured slowly in a room heated with hot water unit heaters.

When the vaults have been properly cured, they are removed to the finishing room. Here all the vaults are given a coat of asphalt and decorative finishing coats are applied by spray gun. As the plant is equipped throughout with a complete system of monorails and cranes, rough handling is eliminated and little manual labor is involved in moving the vaults and in loading them on trucks.

Well Maintained Trucks

Six trucks with specially designed bodies are used in transporting burial vaults. They are of Diamond T, Dodge, and Ford manufacture, and are kept brightly painted and clean as an advertisement for the company. Uniformed attendants, carefully trained to assist funeral directors, operate the trucks.

A complete truck servicing department is maintained in the garage which is constructed of concrete masonry. An oil-change pit in the floor permits inspections and repairs to all motor equipment. The repair shop also houses the concrete laboratory where formulas, materials, aggregates, and concrete at various stages of ageing undergo a systematic pro-



Garage and repair shop keeps trucks and mechanical equipment in efficient working order



Placing reinforcing mesh before pouring concrete into vault mold. Note overhead crane to the rear



John V. Zeiser

gram of testing. A close control is kept on the water-cement ratio to obtain the highest test concrete. At present tests are being made with concrete, using a lightweight aggregate. Although tests have not been completed, the 7-day results were satisfactory.

"Lake on the Roof"

One of the unique features of the Zeiser plant is the "lake on the roof." Located over the factory, this body of water is part of the air-conditioning and temperature-control system maintained to assure proper seasoning of the concrete. Instead of having the roof pitched toward the eaves to drain, the roof is designed with the eaves sloping to the center to hold water on the roof. This roof lake keeps vaults from drying or seasoning too fast, and to some degree eliminates sprinkling vaults with water. In the summer, 4-in. of water is maintained on the roof; in the winter this is reduced to 2-in. to reduce weight on the roof. The ice insulates against extreme cold.

Although the company devotes almost its entire production to concrete burial vaults, an interesting side-line



Attractive office and factory of Zeiser Vault Co.

is the manufacture of concrete wash line posts. These units are made by hand in forms made in the company's machine shop.

Close contacts are kept with funeral directors in the territory. One



Adlow Zeiser

of the sales promotion ideas employed by the company is an annual dinner which is given to the funeral directors and their wives; up to 162 guests attend these dinners. Direct mail advertising is used in several

localities, and mats have been prepared for newspaper advertising. This has been found effective in educating the public in the use of concrete vaults. Attractive brochures about the company, its products, and services are mailed to funeral director clientele. Complete displays are also shown at county fairs.

Combine W.P.B. Quarter Quotas

V. P. AHEARN, executive secretary, National Industrial Sand Association, advises that companies with mine serial numbers issued by the Mining Division under the P-56 Order have received letters from Arthur S. Knolzen, Director of the Division, assigning quotas for controlled materials and repair and maintenance parts in the first and second quarters of 1944. The quotas assigned for the first quarter are also authorized for the second quarter of 1944. Deliveries may be taken in the second quarter according to each company's first quarter assignment without any further application to the Mining Division.



"Lake on the roof" which keeps temperatures uniform in the factory



Celesta J. Zeiser

Farm Markets

(Continued from page 64)

There are many effective ways to promote and sell the farm market. Direct contact to the farmers is effective, as well as the use of advertising in weekly and county papers, direct mail utilizing promotional material of the type developed by the Portland Cement Association and dealer contacts.

A producer in the Southwest is enjoying an \$800 average volume of business monthly as the direct result of carrying small advertising space regularly in his local newspaper. The advertisement carries the heading

*When you
Select*

**A LIGHTWEIGHT
AGGREGATE FOR
YOUR CONCRETE
MASONRY UNITS**

*consider these
facts about*

WAYLITE

LOWER AGGREGATE COSTS because of volume production in six WAYLITE process plants serving the East, South and Middle West.

LOWER FREIGHT COSTS because WAYLITE is lighter in weight and manufactured dry—no freight on water.

GREATER SALES APPEAL because WAYLITE concrete masonry units are light in color, light in weight, and have superior heat insulation, sound absorption, and fire retardant ratings.

THE WAYLITE COMPANY
105 W. MADISON ST. • CHICAGO 2, ILL.

"No Priority Needed," which evidently is all that is necessary to get the farmer to drive in and load up his truck himself.

For the purpose of direct mail promotion good mailing lists can be secured from county agents, building and loan associations, dealers, bankers, rural papers, farm journals or from commercial concerns that compile lists.

The trucker is put to good use by some concerns. Farmers are urged to have their stock or produce truckers bring back a load of concrete block from the city rather than to return empty.

Local building supply dealers are,

in many cases, on the lookout for new building products since lumber and other products they ordinarily handle are unavailable. In some parts of the country certain dealers are stocking concrete masonry units to serve their old customers—the farmers. Such a setup is ideal, since the farmers are not building specialists and are often accustomed to depend upon dealers for advice in regard to construction.

A Wisconsin producer has capitalized on his local State Fair by erecting concrete masonry farm buildings as permanent exhibits at the Fair and carrying newspaper advertisements calling attention to the permanent display.

John Strandberg, president of Concrete Building Units Co., Kansas City, Mo., reports in a letter that the P.C.A. farm folders are proving very effective in his merchandising. In his interviews with farmers, he finds that there is an absolute need for concrete products, because of the shortage of lumber. He also observes that the farmers are looking for permanence in their buildings and believes there is a decided advantage in that no skilled mechanics are needed to lay up concrete masonry due to the flexibility of such construction.

The Hamden Building Tile Co., Inc., Hamden, Conn., in starting a drive for farm business, is purchasing 20,000 copies of the P.C.A. folder to be distributed among most of the farmers in Connecticut's eight counties. A postal card will be enclosed with each mailing so that prospective builders can write for additional information on plans for a particular farm building. The plans will be those developed by the P.C.A. and the Agricultural Department of the University of Connecticut.

To build good will and to establish the firm name, a 19x45 in. wall poster is to be sent to each of 200 Grange clubs in the state. The posters will show a farmer in the field and have a brief message about "Food Fights for Freedom". Consideration is to be given to sending smaller posters to each rural barber shop.

New Lightweight Aggregates

THE LEHIGH NAVIGATION COAL CO., of Philadelphia, Pa., is developing a lightweight slate aggregate to replace cinders. Concrete Units Inc., Bronx, N. Y., is experimenting with sintered fly ash, for the same purpose. This development work is typical of American industry and in the field of lightweight aggregate, points to better products, of concrete.

The War has focused attention on the established expanded burned clay—Haydite and the expanded slags—Celocrete and Waylite. These aggregates have been used in concrete ships, bath tubs, shower receptors and many other concrete products including concrete masonry units.



Surface of aggregate magnified 33 times to show nature of cell structure.

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CTS



The

MODERN

**BESSER VIBRAPAC BETTER
CONCRETE MASONRY UNITS**

**BESSER VIBRAPAC BETTER
CONCRETE MASONRY UNITS IN THE
HANDS OF SKILLED ARCHITECTS
AND BUILDERS HAVE BECOME IN
EFFECT A NEW BUILDING MATERIAL**



BESSER MANUFACTURING CO.
COMPLETE EQUIPMENT for CONCRETE PRODUCTS PLANTS
202 FORTY-FOURTH ST ALPENA, MICH.

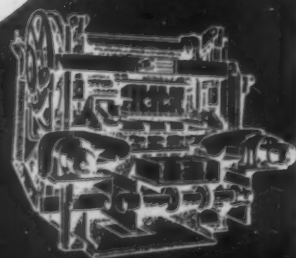
BESSER VIBRAPAC

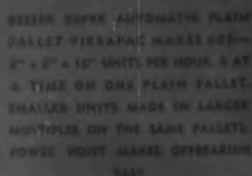




BETTER CONCRETE MASONRY UNITS

Old
IN PROVED
DURABILITY
New IN
DESIGN *and*
EFFECT





BESSER SUPER AUTOMATIC PLAIN
PALLET VIBRAPAC MAKES 600-
8" x 8" x 16" UNITS PER HOUR. 3 AT
A TIME ON ONE PLAIN PALLET.
SMALLER UNITS MADE IN LARGER
MULTIPLES ON THE SAME PALLET.
POWDER HOIST MAKES OUTFEEDING
EASY.

WITH A BESSER VIBRAPAC UNITS CAN
BE CONTROLLED AND VARIED IN DEN-
SITY AND TEXTURE AS REQUIRED FOR
CONCRETEWORKING. ADDITIONAL CON-
SIDERATION OF APPEARANCE OF WALL
FINISH.

BESSER PLAIN PALLET VIBRAPAC



ALL THREE DIFFERENT SIZE UNITS
WERE MADE ON ONE SET OF PLAIN
PALLET ON A BESSER PLAIN PALLET
STRIPPER.

BEAUTY THAT STANDS OUT
FULLY PRESSED TOP
QUALITY THAT STANDS UP

BESSER MANUFACTURING CO.
COMPLETE EQUIPMENT for CONCRETE PRODUCTS PLANTS
102 FORTY-FOURTH ST. ALPENA, MICH.

Joins P.C.A.

SIGFRIED H. WESTBY, formerly assistant highway engineer for the State of Illinois, has been appointed to the Cement Products Bureau of the Portland Cement Association. Mr. Westby is a civil engineer and has been actively engaged in this profession since graduating from the



Sigfried H. Westby

University of Illinois. He was first associated with a firm of consulting municipal engineers where he became familiar with concrete masonry in the construction of catch basins, manholes, inlets and meter vaults. Following this he was engaged in structural designing of power houses and office buildings for the H. M. Byllesby Corp.

President Proposes 34,000 Miles of Highway

DEVELOPMENT of a national highway system of approximately 34,000 miles to provide a network of modern roads "essential to the future economic welfare and defense of the nation" has been proposed to Congress by President Roosevelt. It was estimated the program would cost 750 millions annually over a reasonable period of years. The Inter-regional Highway Committee estimated that upwards of 20 years would be required to complete the highway system.

Becomes P.C.A. Engineer

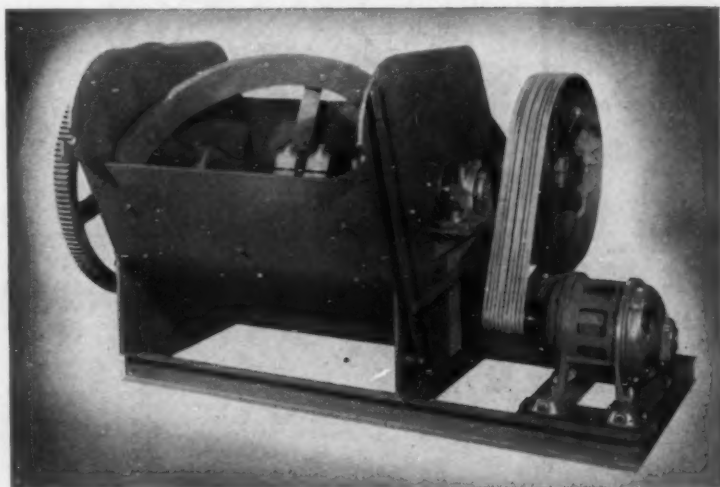
C. F. MOORE, who has had wide experience in the building construction field, has joined the Portland Cement Association as structural engineer for the Cement Products Bureau. During the past eleven years Mr. Moore was engineer for The Engineering Sales Co. and the Adjust-



C. F. Moore

able Forms Co., where his work consisted of structural design for architects, and designing, cost accounting, estimating and general field supervision of form work for concrete construction. He formerly worked in the bridge departments of the C. B. & Q. R.R. and the Minnesota Highway Department. He is a graduate of the University of Minnesota.

**YOU ARE THINKING IN TERMS OF POST WAR ADJUSTMENT
LET US HELP YOU IN THE SOLUTION OF YOUR MECHANICAL PROBLEMS**



THE KENT BATCH MIXER

VIBRA-PRESS BLOCK MACHINES
STRIPPERS & TAMPERS
CONCRETE FEEDERS
CONCRETE ELEVATORS
MIXERS
(Batch and Continuous)
AGGREGATE ELEVATORS
AGGREGATE FEEDERS
PALLET CLEANERS AND OILERS
PALLETS

ASSIST THE 4TH WAR LOAN
CAMPAIGN—BUY BONDS AS
LIBERALLY AS POSSIBLE

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CUYAHOGA FALLS, OHIO



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Complete EQUIPMENT AND ENGINEERING SERVICE

Equipment for all phases of manufacturing concrete cinder block and other lightweight aggregate units. Our engineering service for new plants and modernizing old ones will help you operate more economically.

Hobbs block machines, Anchor tampers, Anchor Jr. strippers, Stearns power strippers, Stearns Joltcrete, Stearns mixers, pallets, Straublox Oscillating attachments, etc.

Repair parts for Anchor, Ideal, Universal, Stearns, Blystone mixers and others.

Anchor Concrete Mchy. Co.

1191 Fairview Ave., Columbus 8, Ohio



Left to right: C. S. DeLamater; E. W. Dienhart; and Ed Brooke

World War I Veteran Uses Plane for Business

EUGENE F. OLSEN, president and treasurer of the Sterns Manufacturing Co., was Lieutenant E. F. Olsen, pilot instructor in the last World War. He is still very much an aviation enthusiast and several years ago, realizing that the use of the airplane would be of considerable value to both customers and friends, he purchased an Aeronca two-place mono-

plane. About two years ago, the Aeronca was replaced with a Stinson Voyager three-place monoplane. In the accompanying illustration are shown two visitors, E. W. Dienhart, executive secretary of the National Concrete Masonry Association, and Ed Brooke, Chief, Concrete Products Unit, Building Materials Division, War Production Board, with C. S. DeLamater, vice-president and secretary of Stearns who were given a ride in the plane.

GEORGIA GOES UNIVERSAL!

The pipe manufacturers in Georgia know a good pipe machine when they see one. Georgia has gone Universal almost 100%.

The following Georgia pipe manufacturers now have Universal Pipe Machines:

- Augusta Concrete Pipe Company
Augusta, Georgia
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Atlanta, Georgia
- Miller Concrete Pipe Company
Valdosta, Georgia
- Camp Concrete Pipe Company (2)
Columbus and Albany, Georgia
- W. F. Scott
Savannah, Georgia.

These men evidently know that it is better to own a Universal than compete with one.

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COLUMBUS - - - OHIO

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McCRACKEN PIPE

Corrugated

TRADE MARK

CONCRETE PIPE MACHINERY CO.

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McLANAHAN EQUIPMENT

CRUSHERS

Single and double roll and jaw crushers, hammer mills, super dry pans—steel log washers and scrubbers, sand drags, revolving and vibrating screens, elevators, conveyors, dryers, flgs, hoists.

SCREENS

Complete portable, semi-portable and stationary crushing, screening, and washing plants for different capacities of any materials.

McLanahan & Stone Corp. Established 1835
HOLLIDAYSBURG,
PENNSYLVANIA

Post-War Prospects for Construction

National Ready Mix Concrete Association convention discusses operating and merchandising problems

PRESIDENT STEPHEN STEPANIAN, Columbus, Ohio, of the National Ready Mixed Concrete Association, in his introductory address, discussed the program features informally, reviewed the growth of the industry and its part in the war effort and paid glowing tribute to Executive Secretary V. P. Ahearn, and Director of Engineering Stanton Walker for their accomplishments.

Mr. Stepanian was well pleased with the progress made in increasing the membership, which has now reached its highest level. During 1943, 48 new member companies were added, nine of which are located in California and eight in Pennsylvania. Much of the credit for the fine participation of California producers was given to Robert Mitchell, president, Consolidated Rock Products Co., Los Angeles, and E. J. Goodpastor, San Francisco. Mr. Stepanian commented briefly upon the financial and budgetary status of the Association, to conclude his address.

Truck Mixer Bureau

Jos. H. DIXEY, New York, N. Y., presided at the Friday morning session of the National Ready Mixed Concrete Association convention. Executive Secretary V. P. Ahearn presented the report of the Board of Directors. A budget of \$18,000 was approved, and it was reported that the association was in solvent condition with a cash balance. The out-

going Board recommended a cooperative arrangement with the University of Maryland to carry out research activities. Another recommendation was to set up a Truck Mixer Bureau of manufacturer members. A committee to study merchandising practices was recommended. The Association also will probably get out a year book in 1944.

New Officers

ALEXANDER FOSTER, JR., explained the new Board of Directors set up in which four new directors will be elected every year. A. R. Shiely presented the following names for officers and directors for the ensuing year which were voted unanimously:

For President, Stephen Stepanian, Columbus, Ohio; vice-president, Alexander Foster, Jr., Philadelphia, Penn.; secretary-treasurer, Alexander Johnson, New York, N. Y.; Board of Directors, one-year term, C. W. Shirey, Waterloo, Iowa; C. P. Maloney, Washington, D. C.; John Murphy, Spokane, Wash.; W. Moore, Boston, Mass.; two-year term, H. Jahncke, New Orleans, La.; F. P. Spratlen, Denver, Colo.; E. J. Nunan, Buffalo, N. Y.; C. Gray, Indianapolis, Ind.; three-year term, E. J. Goodpastor, San Francisco, Calif.; Jos. M. Scheinin, New York, N. Y.; Julius Warner, Cincinnati, Ohio; and Robert F. Porter, Towson, Md.; and the past presidents, James F. McCracken, Louisville, Ky.; Jos. H. Dixey, New

York, N. Y.; H. F. G. Pelsue, New York, N. Y.; H. C. Peter, chairman, Truck Mixer Manufacturers Bureau, Milwaukee, Wis., and the officers.

Ohio Ready Mixed Concrete Association Luncheon

APPROXIMATELY 60 producers attended the annual luncheon meeting of the Ohio Ready Mixed Concrete Association held in conjunction with the annual convention of the National Ready Mixed Concrete Association. Major Irving V. A. Huie, Commissioner of the New York City Department of Public Works, was the featured speaker at the luncheon. Major Huie, in his paper, "Post-War Planning in New York City," outlined an imposing list of projects to be undertaken which indicated that the nation's largest city is leading the parade in actual planning. However, federal monies are counted upon for much of the financing.

He emphasized the importance of having projects planned and ready for action before the war ends, since he believes there will be a period after the war ends when public works projects may be called upon to carry the entire burden of providing employment. This period, he believes, will be the first six to eighteen months after the end of the war, when industry will be in the process of converting to peace-time activities.

The City of New York, with 5.7 percent of the U. S. population, has 1,400,000 men in the armed forces and war industry, which will present a major employment problem after the war, said Major Huie, and the city will be ready with contract documents, plans and specifications for public works projects to meet the challenge.

In September, 1941, Mayor La Guardia directed the City Planning Commission to get ready a post-war program. In 1942, a budget of \$21,600,000 was provided for planning construction projects amounting to \$628,000,000. In 1943 and in 1944, \$32,500,000 was provided for planning projects amounting to almost a billion dollars, which would require 8,700,000 cu. yd. of concrete, 15,000,000 bbl. of portland cement, 11,000,000 cu. yd. of gravel, 6,000,000 cu. yd. of sand and, in addition, sufficient plaster sand to plaster an area covering 7,000,000 sq. yd. of wall surface.



At speaker's table, Ohio Ready Mixed Concrete Association luncheon. Left to right: Stephen Stepanian, reelected president of National Ready Mixed Concrete Association; Maj. Irving Huie, Commissioner, Department of Public Works, New York City; Wm. F. Kern, Jr., president of the Ohio association; and Stanton Walker

Renegotiation of Contracts

A SUBJECT of widespread and timely interest was brought up at the Friday morning session of the National Ready Mixed Concrete Association convention, the "Renegotiation of Ready Mixed Concrete Contracts by the War Agencies."

MAURICE HIRSCH, vice-chairman, War Department Price Adjustment Board, Washington, D. C., gave a very capable presentation of the law and answered a number of written and extemporaneous questions from the floor. He said that the P.A.B. was not merely a collection agency. While industry should be profitable during the war, it should not be profiteering. Mr. Hirsch expressed the view that Congress would retain the principle of renegotiation as a protection to the government and for the security of industry, but the law as it now stands probably would be clarified. There already has been some simplification of forms.

Mr. Hirsch said that P.A.B. has attempted to avoid hide-bound rules, because there is no absolute yardstick for determining when profit is subject to renegotiation. The variation in turn-over of capital in different types of business resulted in the adoption of renegotiation legislation instead of a fixed 6 percent on sales as in the English system.

He said that ordinarily no change should be made in the method of accounting to comply with renegotiation, however, if hardship can be shown a change will be allowed.

Mr. Hirsch referred to the recent ruling that ready mixed concrete was subject to renegotiation although ma-

terials entering into ready mixed concrete were not. On the question of allowing depreciation on a cubic yard basis, Mr. Hirsch said that this method will not be allowed although modifications of the rate of depreciation would be allowed. For example, equipment subjected to unusually hard usage should have a higher rate of depreciation. Differences of depreciation allowances for plants located on the job site and fixed location plants also will be considered. If a plant has been written off by depreciation to zero, this also will be taken into consideration.

It is perfectly proper, he said, to allocate costs on a job or a cubic yard basis. If the price to the government is less than to the commercial buyer, it will not influence renegotiation. In the matter of influence of volume where part of the business is commercial and part government, the government business should be subject to renegotiation.

The statute provides a specific clause, said Mr. Hirsch, that contracts for \$100,000 or more are subject to renegotiation, but an aggregate volume of \$100,000 in war contracts also makes the company subject to the law. For the basis of establishing costs, the base period 1936-1939 is turned to for information but this does not control the situation. Reconversion of plant is rated as one of the risks of doing business, where it can be demonstrated that changes are necessary to resume peace-time business, in establishing prices. Interest on money borrowed for erection of a plant is allowed, said Mr. Hirsch.

A contractor who produces sand and gravel and ready mixed concrete is allowed to charge for the exempted product, sand and gravel, at a price he could buy it in the open market.

Mr. Hirsch said that less than two-tenths of one percent of the renegotiation cases have been appealed.

Standards Committee Report

H. F. THOMSON, St. Louis, Mo., chairman of the Standards Committee, outlined briefly the work of the committee. He said that criticism of ready mixed concrete supplied by some sources has cast a reflection on the industry as a whole and the committee is attempting to find a solution of the problem. Mr. Thomson referred to the tentative draft of the proposed Manual On Control of Quality of Ready Mixed Concrete, and also to the revision of A.S.T.M. specifications.

Price Order

IN ONE of the sessions of the National Ready Mixed Concrete Association, H. F. THOMSON, Chairman of the Subcommittee on Ready Mixed Concrete, reported on the "Proposed Special Price Order for Ready Mixed Concrete and Concrete Products." Serving on the committee with Mr. Thomson are CLARENCE E. EHLE, HERBERT JAHNCKE, PAUL BRID and JOSEPH DIXEY.

Ready mixed concrete has been grouped with concrete pipe and concrete block for the purpose of establishing prices. The committee headed by Mr. Thomson has been endeavoring to prevent the establishment of prices as proposed by O.P.A. since it is its opinion that there are too many variables and there is sufficient competition within the industry to protect the public interest.

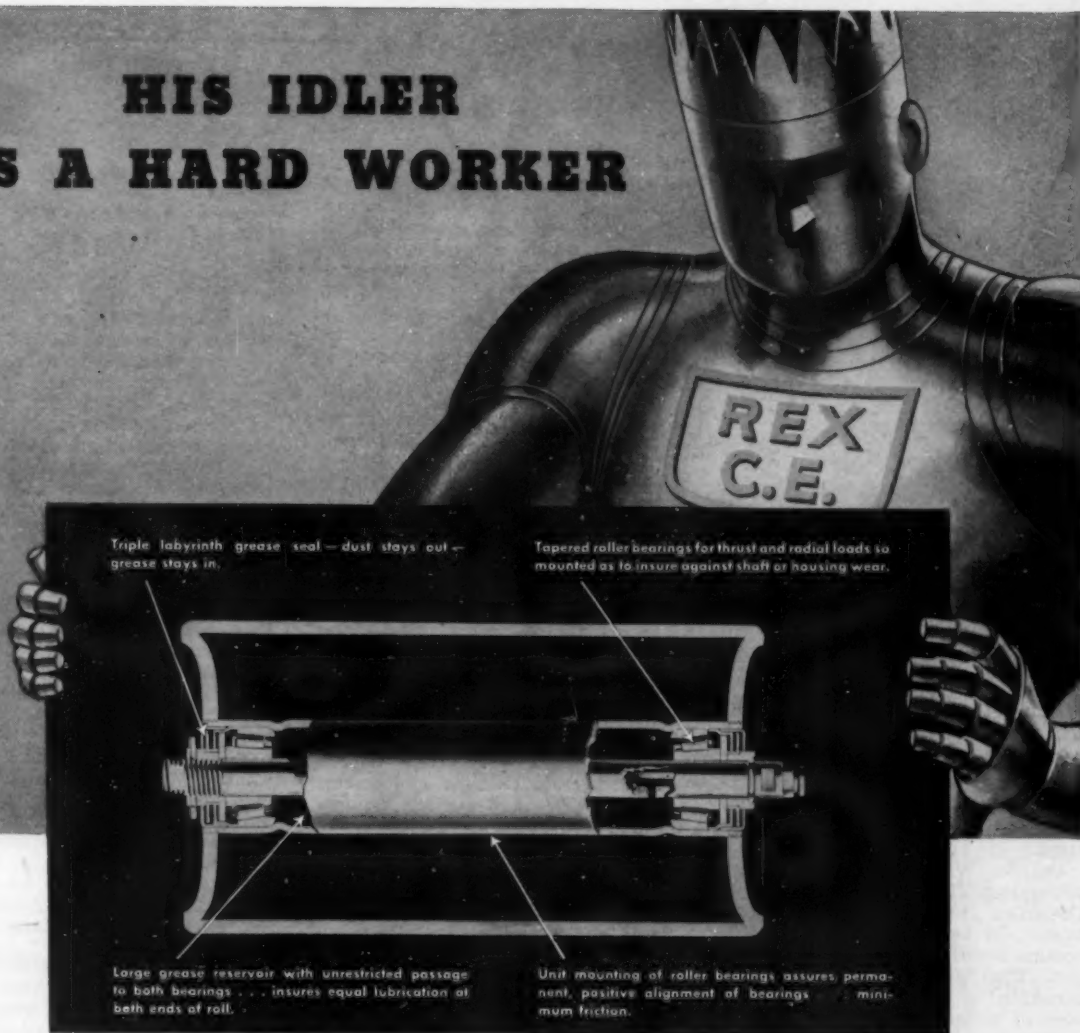
If the proposed price schedules are adopted, said Mr. Thomson, there would be no provision for variables such as interpolating between the prices for 2500 p.s.i. concrete and 3000 p.s.i. concrete, as an example. There would be no provision for adjusting prices according to truck waiting time, for extra long hauls, for special mixes or unusual job conditions which might not be anticipated and which would place undue hardship on equipment, once prices have been established.

Any departure from the price lists would be illegal and if any departures are contemplated, notice would have to be filed within 15 days. Then, if the proposed change is not approved, it would be necessary for the producer to renegotiate with his contractor, which would be an extremely difficult way of operating a ready-mixed concrete business, as was pointed out by Mr. Thomson. No final action has yet been taken on the proposal.



Maurice Hirsch, War Department Price Adjustment Board, featured speaker at N.S.&G.A. sessions, to the right, and T. E. Popplewell

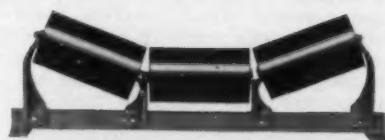
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lubrication assure minimum friction—less wear on belt and idler.

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CHAIN BELT COMPANY OF MILWAUKEE

Air-Entraining Cements

THE ONE EVENING MEETING scheduled by the National Ready Mixed Concrete Association, an open forum on the design of concrete mixtures, drew the largest attendance of the convention. There were many engineers, concrete technicians and off-



Left: Cranford G. Blount, Cranford Co., Inc., Brooklyn, N. Y. Right: J. H. Chubb, Pennsylvania-Dixie Cement Corporation

cialists from the City of New York participating in the discussion, along with producers of ready-mixed concrete.

Stanton Walker's paper, "The Application of Theory of Probability in Designing for Strength Specifications" (to be published in a forthcoming issue), was the principal subject. The balance of the time was consumed in discussing the pros and cons of air-entraining cements.

According to Mr. Walker, the State of Ohio will require the use of Vinsol resin cements for concrete paving slabs, and the Corp of Engineers is specifying those cements for certain projects. The strength of the concrete is known to decrease proportionately to the entrained air and, he said, it is difficult to control the amount of entrained air. He said the air should be limited to three or four percent, which will result in a decrease of $4\frac{1}{2}$ to 6 lb. in the weight of a cubic foot of concrete. He mentioned a case where there was 11 percent entrained air and the strength of the concrete was diminished by 50 percent. Less fine aggregate in an amount equal to the volume of entrained air can be used in the mix, apparently without detrimental effect. Where sack mixes are specified, more quantity of concrete is obtained.

Following Mr. Walker's introductory remarks, considerable discussion developed as to the amount of air entrained when tight drum mixers are used versus tilted open drum mixers.

F. N. ANDERSON, Anderson Sand and Gravel Co., Saginaw, Mich., who has had considerable experience with

air-entraining cements, using Orvis in the mix, said that the fines in the sand are the determining factor in air-entrainment. If the sand is high in fines, it is difficult to finish the concrete. He has observed no difference in using the two standard types of truck mixers. An engineer from the U. S. Corps of Engineers said that the type of mixer, in his experience, has no influence on the amount of air entrainment.

WM. ELLIOTT, Dept. of Public Works, New York City, told of attempting to blend natural cement with portland cement in an endeavor to get greater durability. He said that it was impossible to control the blended cement concrete when mixed in ready-mixed concrete trucks of the horizontal drum type. Strengths deviated as much as 1000 p.s.i.

FRANK JACKSON, Senior Testing Engineer Public Roads Administration, was called upon for a few remarks. He said that air-entraining cement concrete had better durability and greater resistance to scaling than regular portland cement concrete where calcium chloride and sodium chloride were used for ice removal. In northern climates under extreme weathering conditions he believes such concretes are effective. However, he was apprehensive of a possible adverse bond with the steel if such cements are used in concrete structures.

Engineering Directors' Report

STANTON WALKER, Director of Engineering, in his report to the National Ready Mixed Concrete Association, briefly mentioned the new A.S.T.M. specification for ready-mixed concrete. He told of the arrangement that has been made to



A. W. Kimmel, Ready Mixed Corporation, Dayton, Ohio

establish a research laboratory at the University of Maryland whereby the Association will avail itself of the facilities of the National Sand and Gravel Association in conducting research.

Research will be carried out also under plant and field conditions, through the courtesy of cooperating members. The industry produced 25,000,000 cu. yd. of concrete in 12 months, utilizing in excess of 30,000,000 bbl. of cement, he said, and now has grown to the point of being research-minded. He said the industry is in need of specific information on concrete proportioning, different brands of cement and needs information on the relation of mixing time to volume change, to mention a few proposed research subjects.

Manual of Recommended Practices

The proposed Manual of Recommended Practices came up for discussion in the concluding session of the National Ready Mixed Concrete Association. The general opinion was that it was excellent, especially for the education of the younger men in the industry.

T. L. PETERS, T. L. Smith Co., Milwaukee, Wis., went into considerable detail in telling how the Truck Mixer Manufacturers Bureau, of which he is chairman, is standardizing truck mixers.

Rating plates will be issued on all new mixer models, according to the new basis of standardizing sizes.

Price Relief Procedures

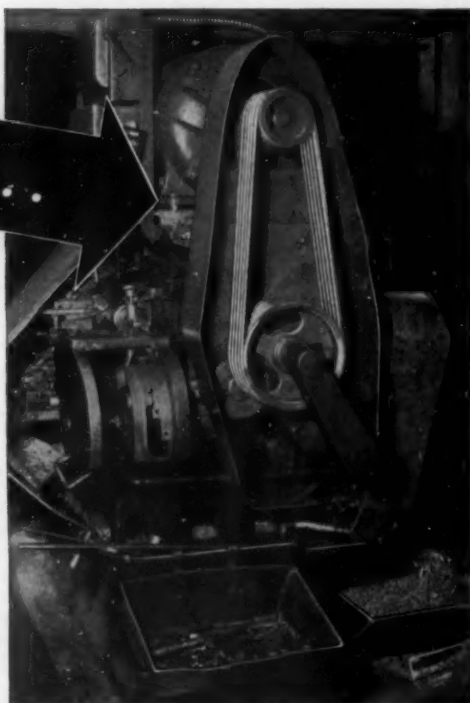
WALTER H. ACHESON, Building Materials Branch, Office of Price Administration, reviewed the various methods of obtaining price relief changes. Mr. Acheson said that there were two types of adjustment possible, (1) individual adjustment, and (2) overall industry or regional petitions for amendment. However, the individual adjustment method was revoked November 15, 1942, because it was believed the individual cases had been disposed of. Amendment 9 to MPR 188 provided for regional directors to make individual adjustments primarily due to war causing local shortages.

JOHN GREGG of Whittier, Calif., asked whether a regional decision would apply to both the petitioning companies and those that do not petition. Mr. Acheson said that the decision would apply to all companies in the region to which it applied. Ray Warren brought up the question as to the number of petitioners required, and the answer was that any number could petition. Donald Reynolds of Boston asked about the effect of volume on price. Mr. Acheson replied that the base period, 1936-1939 would control, and the price would be brought up to that level. Eric Ryberg of Salt Lake City also entered into this discussion.

On This Screw Machine . . .

GATES V-Belts of *Special* Synthetic Rubber

*wear more than 3-TIMES as long
as belts of NATURAL Rubber!*



Here is an excellent example of how well it pays to consult the Gates Field Engineer on any problem of drive operation.

On the screw machine pictured above, the Macomb Screw Products Company used natural rubber V-belts, getting 6 to 8 months' wear at 12 to 18 hours per day. Because a severe oil condition existed, the Gates Field Engineer recommended changing to Gates V-belts of special synthetic rubber. These special synthetic belts are averaging 18 to 24 months' wear at 24 hours per day—an increase of 300% to 400% in belt life!

You may not have in your plant any drive which offers this particular problem—yet other service conditions may be such that a V-belt of some special construction can most profitably be used. For example, in your particular installation, V-belts with tension members composed of flexible steel cables may prove to be the most efficient and economical. Again, Rayon Cord V-belts or Static-Safety V-belts may best fit your special need.

In any case, the wisest move you can make is to phone the Gates Field Engineer. He is thoroughly competent to analyze any drive problem. He is completely informed on the nature and advantages of every type of belt. He will always recommend the practice that will be most efficient and economical for you.

Your Gates Field Engineer Can
Tell You Whether YOU Need—

- ① *Special* Synthetic V-Belts
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CRUSHED STONE



Fred O. Earnshaw, new president, N.C.S.A.

WITH A REGISTRATION of well over 500, the National Crushed Stone Association held one of its most successful conventions, its 27th, at the New Yorker Hotel, New York City, from January 31 through February 2. The Association did not meet last year due to wartime conditions and judging from the attendance, and the interest in the meetings, the industry had many problems that it desired to have considered.

PRESIDENT WM. M. ANDREWS gave a short talk in calling the convention to order. He mentioned some of the principal new activities being undertaken by the Association and gave appropriate recognition to the good work of Administrative Director J. R. Boyd and Engineering Director A. T. Goldbeck. He urged that the good work be continued in the face of a not too rosy future for the industry.

New Officers

F. O. EARNSHAW, president of the Carbon Limestone Co., Youngstown, Ohio, was elected president, and Wm. E. Hilliard was reelected treasurer. F. W. Schmidt, Jr., North Jersey Quarry Co., Morristown, N. J., was elected vice-president, to represent the eastern region. Other regional vice-presidents include T. C. Cooke (New England), Paul M. Nauman (Midwestern), A. J. Wilson (Western), W. T. Ragland (Southeastern), W. C. Sparks (Central), A. J. Cayia (Northern) and W. F. Wise (Southwestern).

The executive committee comprises F. O. Earnshaw, chairman, and Wm. M. Andrews, G. A. Austin, L. J. Box-

War and Post-war Problems Discussed by Stone Industry

National Crushed Stone Association program at New York City convention draws a large attendance

ley, Otho M. Graves, Russell Rarey, W. F. Wise and A. L. Worthen.

An amendment to the constitution was passed at the convention to permit the appointment of honorary members to the Board of Directors where it is desired to give special recognition to certain members. Three men were appointed unanimously: A. J. Blair, first president of the National Crushed Stone Association; Harold Williams, attorney, Boston, Mass.; and Stirling Tomkins, New York Trap Rock Corp., former president of the Association, who is at present in North Africa serving as the head of the American Red Cross in the field. Otho M. Graves, chairman of the resolutions committee, paid glowing tribute to these men in proposing their appointment to the Board of Directors.

The motion picture, "War Department Report," which revealed the job that lies ahead for us and the problems and possibilities of attack on the Axis, was shown at the Greeting Luncheon the first day of the convention. The "House of Magic," a mystifying display of electric phenomena, was presented through the courtesy of the General Electric Co., at the general luncheon sponsored by the Manufacturers Division.

The presentation of the National Crushed Stone Association Safety Awards (announced in *Rock Products*, p. 130, August, 1943) was made by P. N. BUSHNELL, past general chairman, Cement and Quarry Section, National Safety Council, at the annual banquet. The presentation was followed by a talk, "An Analysis of the War Situation as of Today," by Maj. George Fielding Eliot, famous newspaper columnist and analyst.

Manufacturers Breakfast

The Manufacturers Division held a breakfast business meeting mainly to elect officers for 1944.

MIL O. NICE, Hercules Powder Co., Wilmington, Del., was elected chairman, succeeding J. Harper Fulkerson, Cross Engineering Co., Carbondale, Penn. J. R. Boyd, Administrative Director of the National Crushed Stone Association is secretary of the Division.

Vice-chairmen are J. C. Farrell, Easton Car & Construction Co., Easton, Penn.; J. B. Terbell, American Manganese Steel Division, The American Brake Shoe Co., Chicago Heights, Ill.; R. C. Johnson, Simplicity Engineering Co., Durand, Mich.; L. C. Mosley, Marion Steam



J. Harper Fulkerson, Cross Engineering Co., chairman of Manufacturers' Division, N.C.S.A. Left to right: Milo A. Nice, Hercules Powder Co., new chairman; Miss Beatrice Gay, secretary to Mr. Boyd; J. R. Boyd, administrative director, N.C.S.A.; Mr. Fulkerson; Fred Braun, W. S. Tyler Co., and F. O. Wyse, Bucyrus-Erie Co.

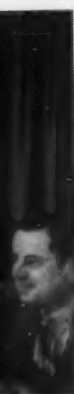
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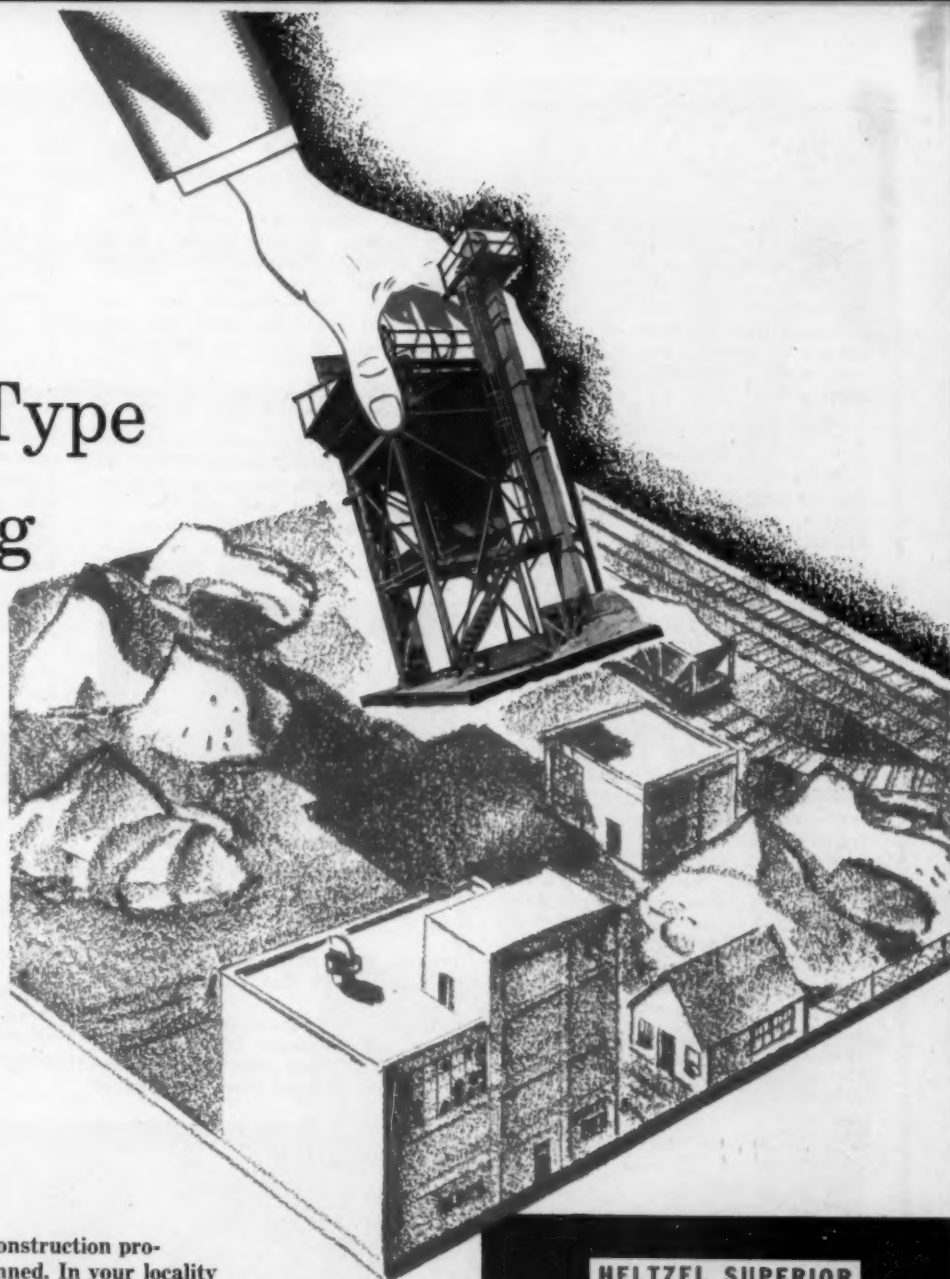


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Most post-war concrete construction projects will go forward as planned. In your locality are many thousands of dollars worth of aggregate material and ready-mix concrete business already scheduled.

This business will demand certain changes and increases in your material handling equipment. Changes brought about by stepped-up war time production . . . changes that will be demanded in stepped-up post-war construction.

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PORTABLE AND SEMI-PORTABLE BULK CEMENT BATCHING BINS FROM 100 TO 750 BARRELS CAPACITY
CENTRAL MIXING PLANTS
CEMENT TANKS TO 1500 BARRELS
TREMIE CHUTING
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CRUSHED STONE

Shovel Co., Marion, Ohio; J. Craig McLanahan, McLanahan Stone Corp., Hollidaysburg, Penn.; and C. H. Roberts, Traylor Engineering & Manufacturing Co., Allentown, Penn. J. Harper Fulkerson, Milo A. Nice and L. W. Shugg, General Electric Co., Schenectady, N. Y., are the representatives of the Manufacturers Division elected to serve on the Board of Directors of the National Crushed Stone Association.

Introduction of Edward W. Bauman

OTHO M. GRAVES, past-president of the National Crushed Stone Association, at the session on January 31, introduced Edward W. Bauman, recently with the mining division of the W.P.B., as the newly appointed field engineer of the Association. As Mr. Graves said, Mr. Bauman hardly needed an introduction since the members all knew and liked him from his previous contacts with the industry. Mr. Graves recalled introducing A. T. Goldbeck and J. R. Boyd, as employees of the Association, 19 years ago, and said that in increasing its staff the Association was making a definite forward step in making more effective use of the research work of Mr. Goldbeck. He sketched Mr. Bauman's career as a civil engineering graduate, experienced in state highway work and particularly in the testing of highway materials.

EDWARD W. BAUMAN, in reply, said that he had been with the Association too short a time to point to any accomplishments; he had however studied the literature of the crushed stone industry and was much impressed with the wealth and value

of the contributions made by Mr. Goldbeck. As the Association's field engineer he would strive to more effectively disseminate these laboratory findings; he would spend a large part of his time contacting highway and public works officials, railway engineering departments, etc. He mentioned that the state highway departments of some 25 states still

did not recognize flexural tests of beams as necessary for concrete pavement mixture design; this is a prime objective. Many state highway departments are in the process now of revising their specifications. Mr. Bauman also mentioned the possibility of rendering services to the members of the Manufacturers' Division of the Association.

Business Conditions—Outlook

PRES. WM. A. ANDREWS summarized the reports submitted by the regional vice-presidents as to business conditions during 1943 and the outlook for 1944. The overall picture was not so good, as he stated in his introduction but the reports for certain



To the left: H. H. Wagner, Pennsylvania Stone Producers' Association, and, right, W. H. Crook, J. E. Baker Co.

hostilities in Europe. The volume of crushed stone business during 1943 averaged 55 percent of the 1942 volume with prices generally the same. Demand averaged 40 percent of capacity of which volume 30 percent went into highway construction, 30 percent was ballast, 25 percent for building and 15 percent for miscellaneous uses. The outlook for 1944 is for close to the 1943 demand. No serious transportation difficulties were encountered but the manpower shortage was serious. Some quarries in the region did not operate at all in 1943.

Mr. Cayia's report, for the Northern Region, was better and were it not for a boat shortage it would have been much better. Volume in 1943 ran from 50 percent greater than in 1942 to 50 percent of 1942 volume with little change in prices. The percentage of business ran from a high of 90 percent railroad ballast to none for one company. Highway stone ran from 75 percent to 10 percent. Demand for chemical and metallurgical stone was very good but was restricted by the boat shortage. One company expects as good business in

(Continued on page 84)



New York Trap Rock Corporation had 44 of its officials at the National Crushed Stone Association convention. Wilson Foss, Jr., chairman of the board, on extreme left

Universal Crushers are Helping to Shorten the "Duration"

By maintaining maximum, uniform production of vital rock products at numerous mines and quarries, Universal Crushers are helping to speed the war to a victorious conclusion. The Universal installations shown, both of which have seen years of continuous service, are typical.

A veteran 916 Universal Crusher for primary reduction of material for the Western Feldspar Milling Co., Denver, Colo., and a 914 Universal held in reserve for use when their stock pile gets too big, are pictured. Feldspar is important in the manufacture of abrasives for the metal working industries.

Also shown is an old 1020 Universal Crusher for secondary reduction of kyanite (aluminum silicate) at Celo Mines, Inc., Burnsville, N. C. — essential for heat-treating and melting furnace refractory linings and cements.

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Universal Crushers reducing tough feldspar at the Western Feldspar Milling Co., Denver, Colo.

Universal crushing kyanite at Celo Mines in North Carolina.

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CRUSHERS, PULVERIZERS, COMPLETE PLANTS, SPREADER-ROLLERS, PORTABLE ASPHALT PLANTS





General Crushed Stone Co. had 31 of its officials present at the National Crushed Stone Association convention. In the center may be seen John Rice, Sr., chairman, and Otho Graves, president

1944 due to the high volume of railroad ballast, but the others expect a slight decrease. Transportation by rail or trucks and manpower will be the chief problems in 1944.

The report by Fred Earnshaw for the Eastern Region was better than the average due to the demand for fluxing stone volume in 1943 was over 70 percent that of 1942, with little change in the price level. Demand was less than 50 percent of plant capacity, but a few sections had capacity operations due to war work and flux stone demand. Highway construction was poor, there was a slight increase in railroad ballast and agricultural limestone shipments dropped. Less business is anticipated in 1944 due to less highway work and the growing manpower shortage.

Mr. Sparks' report for the Central Region was not so favorable while one producer's business increased over 40 percent due to government construction, some reported a 60 percent reduction under 1942 volume. Percentage of plant capacity utilized was less in 1943 than in 1942. Railroad ballast and chemical and metallurgical stone led the shipments, highway construction fell off and the agstone situation was slightly improved. A lower demand overall is expected in 1944, but with a slight increase in chemical and metallurgical stone and agstone.

The Midwestern region reported a volume from only 50 percent of 1942 to 50 percent over 1942. Railroad ballast took from 15 to 50 percent of production. Agstone showed a slight improvement. A few producers enjoyed good business in chemical and metallurgical stone while one producer had 35 percent of his production go into defense projects. About half of the producers expect better conditions in 1944 and the rest an-

ticipate a decrease. Difficulties in both rail and truck transportation and in available manpower are expected in 1944. This report, by Paul Nauman, Dubuque, Iowa, stated that his section is still troubled with local subdivisions still insisting on producing their own requirements.

In the South, reported by Vice-President Ragland, conditions were good in 1943. Only one producer reported a lower tonnage in 1943 than in 1942. Volume of demand ran from 75 percent to 100 percent of capacity. Slightly less business is expected in 1944. Manpower will be more difficult.

In the Southwest, reported by Vice-President Wise, the volume of business and the price structure in 1943 equaled 1942. Volume of demand was 90 percent of capacity. Federal defense projects took 50 percent of the production, railroad ballast 30 percent and highway work 17 percent. A 50 percent drop in production is expected in 1944.

California volume of crushed stone in 1943 was about equal to 1942 volume and prices remained constant. Demand in 1944 will drop about one-third from 1943 demand, with railroad ballast increasing in percentage of output. A serious car shortage prevailed in 1943 but will ease in 1944.

Engineering Director's Report

Engineering Director A. T. Goldbeck, in his annual report, emphasized the importance of doing more engineering and research work as construction declines and competition becomes keener.

An interesting statement made by Mr. Goldbeck was that if Vinsol-Resin cements are used in concrete highways, just as high strengths are obtainable with aggregate of silvery shape as with cubical aggregate. Vinsol-resin cement concretes are more

workable, which accounts for the finding.

Administrative Director's Report

In his annual report to the Board of Directors, Administrative Director J. R. Boyd reviewed the activities of his office and commented briefly and to the point on matters of utmost concern to the industry.

The main concentration was in attempting to gain essentiality recognition for the industry, which has not yet been decided favorably. Mr. Boyd cited some local instances where rulings have been made. In one region, the production of metallurgical stone and agstone was classed as an essential activity but stone used for construction and railroad ballast was classed as non-essential. This condition was cleared up somewhat, he said, and he observed that when rulings are made by the War Manpower Commission locally they are likely to spread nationally.

He mentioned the 75 percent rule, which declares an operation to be essential if 75 percent of the products are on the essential list. Mr. Boyd believes that as the War Manpower Commission de-centralizes, the industry will have a better chance of being ruled essential by the local W.M.C. offices.

He does not believe ceiling prices will be established for the crushed stone industry because of the difficulties involved, even though he recognizes there is a trend in the direction of establishing such prices.

In commenting on the highway program, he said that \$407,000,000 will be available in 1944 which is about the same amount that was available in 1943. This figure is very low, and he emphasized that the industry must look further ahead, to post-war highways.

Yes, it happens in the best regulated plants!

THE inconsistency pointed out here isn't as rare as you might think. It occurs whenever pipe heavier than needed is used for low or moderate pressure services like those listed below. We have simply exercised a little cartoon license to bring this fact out into the light of day.

Of course the heavy pipe isn't actually used for safety. It is used simply because of the time-honored tendency to think of Standard Thickness pipe as the low point on the scale of available pipe thicknesses.

Actually Standard Thickness Pipe is fairly high on that scale. In hundreds of applications light, but remarkably strong Taylor Spiral Pipe can handle the greater part of services which are too often thoughtlessly assigned to heavier pipe.

Taylor Spiral Pipe can handle these jobs adequately and with strength and service life to spare. In many cases the installed cost of Taylor Spiral is no more than *half* that of the heavy pipe it replaces. So plants that use Taylor Spiral for these low and moderate pressure applications have saved many thousands of dollars.

Moreover, in today's emergency of wartime scar-

city, the conservation of steel effected by Taylor Spiral threatens to outrank even its big saving of dollars!

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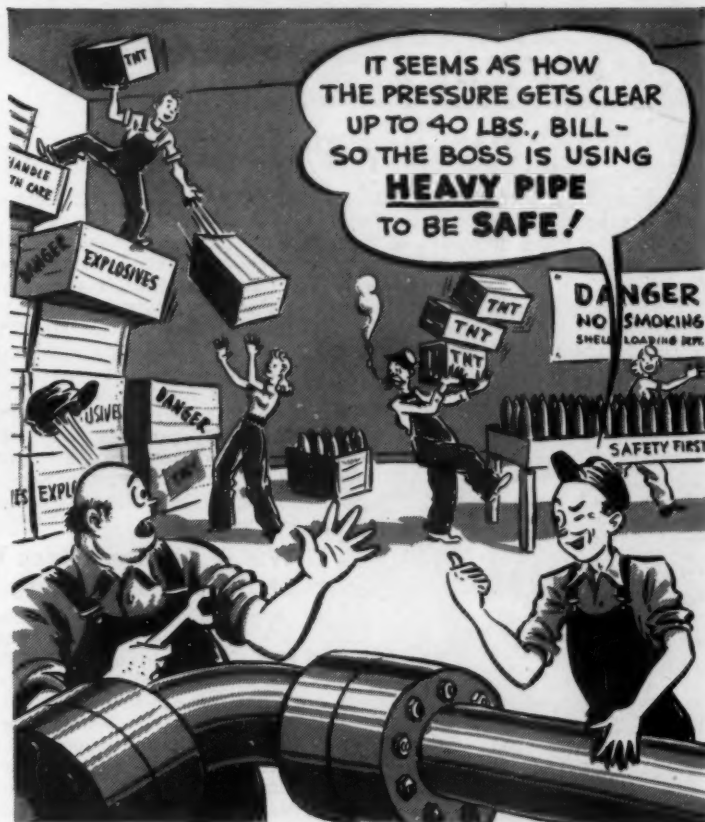
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- Hydraulic Mining
- Dredge Lines



PRIORITIES

Priority Procedures

AN ENTIRE SESSION of the National Crushed Stone Association was devoted to a panel discussion of wartime controls applicable to the procurement of new equipment and maintenance, repairs and operating supplies.

DR. MARCELLUS H. STOW, Deputy Director, Mining Division, W.P.B.,



L. F. Miller, New York Trap Rock Co.

commented briefly on some of the provisions of P-56 and the application forms for semi-annual quotas of maintenance, repairs, and operating supplies. As to minor capital items, to be requested in quotas, he emphasized that all needed items under \$500 be listed on the quota application. In other words, if five items costing \$400 each be needed, for example, they should be listed.

The restrictions on re-sale of equipment are for the purpose of keeping equipment in the industry, he said. Speaking generally, he said that controlled materials are much easier now. Fabricated repair parts are much easier to get but bearings, big shovels and tractors remain extremely critical.

J. E. BACON, Chief, Non-Metallic Section, Mining Division, W.P.B., urged that if needs are overestimated under form 2939 that a No. 32 be sent in so that the items requested can be released to another serialized operator. He said that his Division wants to keep plants in first-class operating condition. He commented on the use of various forms and concluded with a comment that he knew where eight trucks with new tires were available.

ROY DAGEN, Chief, Concrete Materials Unit, Building Materials Division,

W.P.B., said that since early in 1943 a definite AA-2 rating for all MRO items had been authorized for ready-mixed concrete and pre-mixed bituminous concrete producers.

ROBERT J. CARROLL, Assistant Chief Director, Construction Machinery Division, W.P.B., took the place of M. B. Garber, Consultant and former Director of the Division, who was unable to be present. Mr. Carroll outlined the organization of his Division and the orders under which it operates, information on which can be found in Mr. Garber's address on this page.

W.P.B. Director Gives Views at N.S.&G.A. Meeting

ARTHUR S. KNOIZEN, director, Mining Division, War Production Board, gave an off-the-record talk, the substance of which, without direct quotation, was as follows: The mining division still aims to be of the utmost service to producers of mining materials essential to the war effort. The division expects to continue to deal with many and complicated problems, as it has in the past, because the war will probably last for a long time, and continued production is just as imperative as ever.

There is still such a shortage of steel that its use for civilian purposes must be very restricted; there is not enough for rehabilitation of plants, such as the mining division would like to see. Copper wiring is still restricted and certain types of rubber, including synthetics, are prohibited for all except war uses.

The revision of the W.P.B. Order P-56 covering purchase of supplies and equipment for the mining indus-



Philip E. Helm, Carbon Limestone Co., Youngstown, Ohio

try, in December, 1943, was designed to help the industry. The thought behind it was to bring relief from filling out so many forms, so that requests for capital account items, to a total of \$500 for each plant or operation, may be filed in one application. If there are five different plants, five items amounting to \$500 each may be ordered, providing each item is sent to a different plant, and is charged to that plant and not to the parent company. This is designed to simplify the procedure in filing the No. 400 requests, and so that the quotas can be assigned six months in advance.

If there are interim requests for small items, such as spare parts, the first request should be sent direct to the W.P.B. at Washington. It will be granted unless it is proportionally higher than purchases for the previous quarter, or other experience with the company. The W.P.B. must have some way of checking with what appears to be a reasonable request. The W.P.B. can not determine the end use of sand and gravel. The verification must come from other government bureaus or departments.

Some types of equipment can be readily obtained now, but shovels, tractors, cranes, etc., are very difficult to obtain, for military reasons. The mining division fully realizes the importance of the sand and gravel industry to the war effort.

Construction Machinery

M. B. GARBER, recently chief of the Construction Machinery Division, W.P.B., and now one of its consultants, discussed priority problems in connection with the acquisition of construction machinery, in which division are shovels, cranes, rock drills, and other portable machinery used by the sand and gravel industry. The construction machinery division has issued five limitation orders: L-53, covering track-laying or crawler tractors; L-53(b) covering tractor parts; L-192 covering production and distribution of end products and repair parts of all other construction machinery; L-196 covering used construction machinery; and L-217, which has to do with standardization, simplification and conservation as applied to certain items of construction machinery.

With regard to L-192, which is the most important to the sand and gravel industry, there is a new amendment as of January 10. Order L-192 covers a variety of equipment and repair parts. Originally it had three schedules of machinery, A, B and C. In the new amendment, Schedule C was eliminated and most of the items transferred to Schedule A, that is the schedule of heavy equipment, although a few went to

(Continued on page 98)

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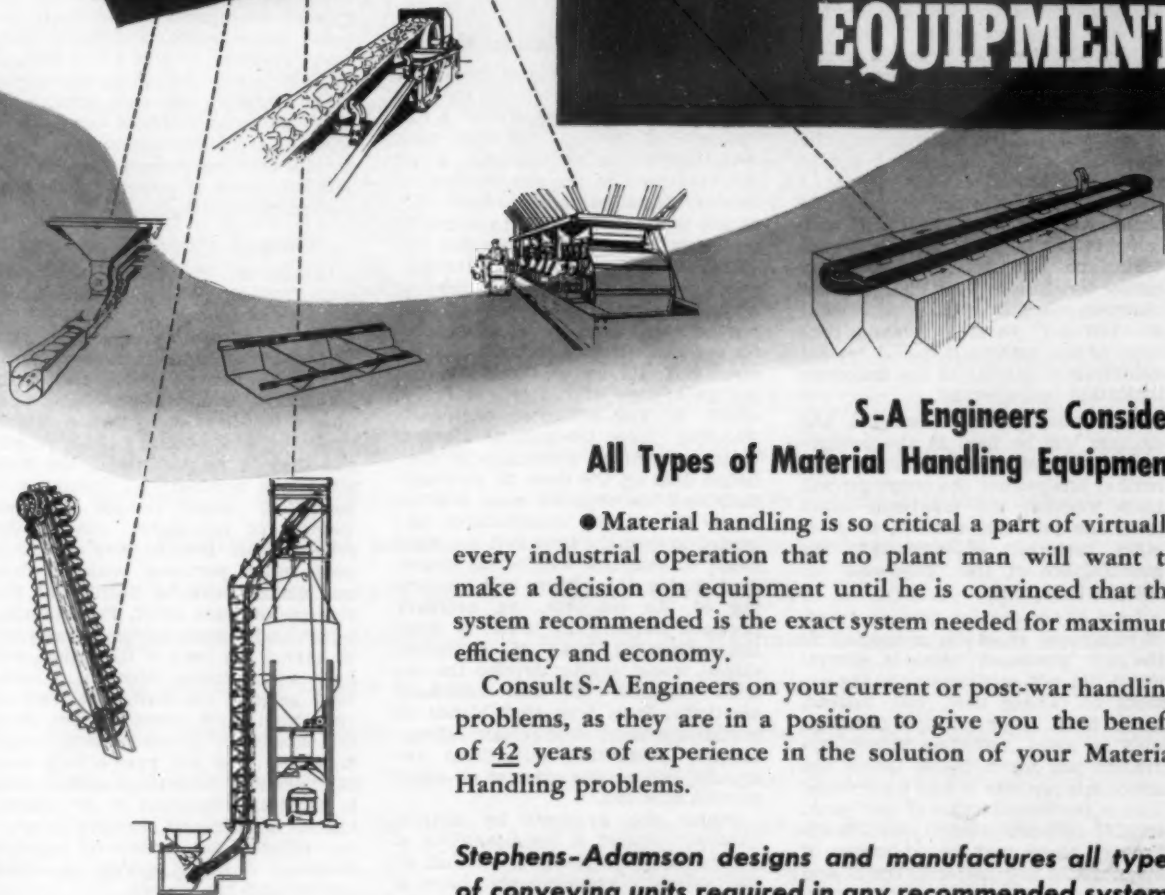
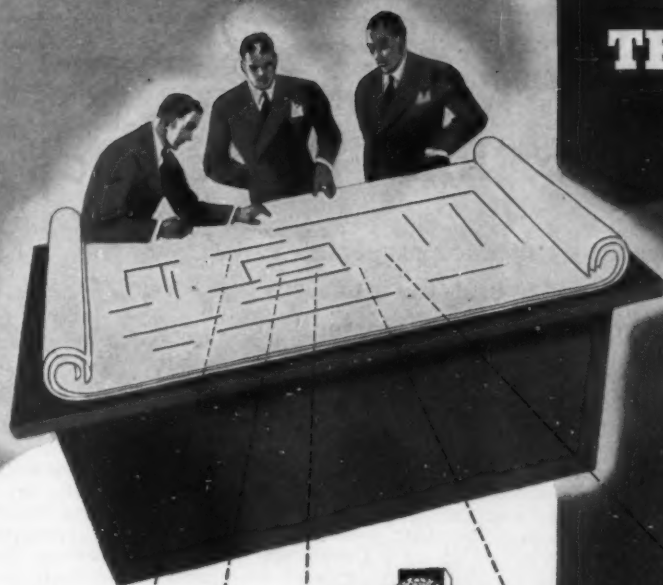
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Specifications for Portland Pozzolanas

Part 3: Describes the application of special purpose cement blends, and the development of a general purpose cement

By ALTON J. BLANK*

SOME YEARS AGO I was situated at a portland cement factory located in the southern part of the United States where considerable difficulties were had in connection with the manufacture of high magnesia cement, as well as through their use in concrete constructions. If you had an opportunity to read my article, "Effect of Magnesium Oxide on Clinker and Cement,"† you will understand my feelings as concerns portland or other cements that may have large amounts of magnesia present. I feel now as I did then, that the magnesia content of cement should be limited to at least 6 percent. I have investigated concrete roads and structures that have been built with cements having high magnesia contents and am convinced that my earlier conclusions were justified. New cements, whether of the "processed" or "blended" varieties, should conform to the present portland cement specification insofar as the magnesia limitation is concerned.

Otherwise, portland cements and clinkers will be used in the production of these new cements, and neither analyst nor the consumer will know whether this magnesia comes from the portland cement, or from other materials entering into the manufacture of the "processed" or "blended" cements.

I am of the opinion that an excess of magnesia could be permitted in the new "processed" cements, providing it did not originate with the cement or clinker used, but, instead, came from other of the materials such as limes, providing proper hydration has taken place. (Since the above was written it has been found that in the manufacture of the "processed" cements under the Blank Process, there may be an excess of magnesia in the portland cement and clinker used, as well as in the limes, since autoclaving and accelerated hydration of the magnesia is affected as a result of grinding the materials under moist-heat conditions.) However, and notwithstanding the above, and to avoid confusion, I would be inclined to stick to present portland

cement limitations of magnesia content in any new specifications that may be drawn up to cover the new types of "processed" and "blended" cements.

Special Purpose Cement Blends

I refer to those cements that must come within certain limits as concerns the "heat of hydration." A fair example of cements of this type, necessarily "blended" cements, would be those used in the construction of Boulder Dam. In this instance, four or five portland cements, produced in as many plants, were blended together to yield a certain strength, and to develop a minimum heat of hydration. This type of cement cannot be considered as being suitable for general purpose concrete constructions. Its use is limited to the particular type of concrete work for which it was designed. Notwithstanding these precautions, it was found necessary, according to published data on the dam, to mechanically cool the concrete mass and remove the excess temperatures imparted to it by the so-called, low-heat blend of cements, which was generated during the setting and hardening of the concrete. An ordinary portland cement, in order to meet the minimum heat of hydration clause, would neither develop the desired strength nor the necessary plasticity. It is true that blends of portland cement yield certain advantageous properties, but these are usually had at the expense of other desired qualities.

Under the process by which "Atoyac" cement† is manufactured, a product may be made to pass all of the strength requirements, have a heat of hydration 50 percent under those blends now being used, and would contain less than 50 percent of portland cement clinker. Such a cement would conform to the desired setting as well as strength properties. It would, incidentally, show a much greater increase in strength with age than is had by the portland cement blends now in use.

Similarly, where portland cements

are made plastic, this is accomplished by sacrificing other desirable properties.

Where portland cements are made to yield high-early-strength, as a result of manipulation of the chemical composition and manufacturing procedure, this is obtained at the expense of durability. On the other hand, those portland cements especially designed to give a low heat of hydration, are had at the expense of early strength. At the same time, those portland cements designed so as to be especially resistant to alkali ground and sea waters, are also had at the expense of strength and other desired properties.

General Purpose Cements

Passing to the studies that concern "blended" cements, the following may be said:

(a) Portland cements, as now manufactured under existing specifications cannot be of the high early strength type and at the same time have a low heat of hydration, which results in minor volume changes. Nor can they be plastic, nor of the high silica type necessary for resistance to action by alkali ground and sea waters. To accomplish any of the requisites of present day demands made upon portland cements, only one demand can be fulfilled at the expense of some other. For example, a portland cement especially designed to have a low heat of hydration, will have a low initial strength. A portland cement especially designed to yield high early strength, does so at the expense of ultimate strength and durability, and will have a high heat of hydration. A portland cement that is especially designed to be plastic, has its setting and strength properties affected, as do portland cements designed to resist action of alkali ground and sea waters.

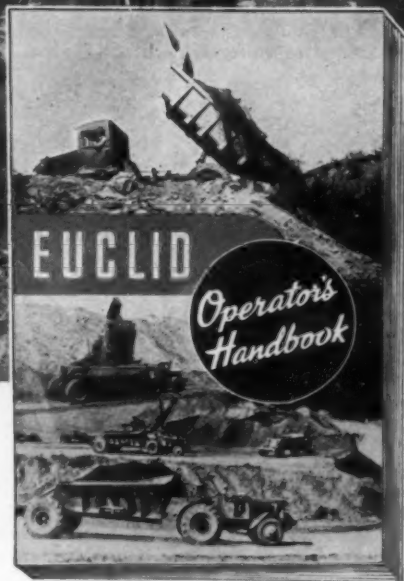
(b) The "blended" cements that the writer has discussed do not meet the all around requirements of a cement for general purpose concrete construction. As has been stated before, the "Atoyac" cement (rather, the process involved in its manufacture), through variations in the type and proportions of materials, together with the control exercised

(Continued on page 100)

*Executive vice-president, Cementos Atoyac, 5 A, Puebla, Puebla, Mexico.

†Concrete, August, 1930.

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Lime Plant Behind the Battle Front

Part 3: Operating experience with new oil-fired, center-burner vertical kilns by Hawaiian Gas Products Co. shows excellent lime-fuel ratio

By VICTOR J. AZBE*

PERFECTING lime kilns is a slow and never-ending process. While there was some improvement in the kiln performance of the Hawaiian Gas Products Company (GasproO) even while I was there most of the work mentioned in the first two articles was left to Chief Engineer Morgan and Lime Superintendent Holman to carry out and put into effect. As the operating system which was installed is very interesting and novel, and since results therefrom are very good, it was decided to add this third article to the series. The article will be based entirely upon contents of letters received from President Allan Renton, Chief Engineer W. A. Morgan, Chief Chemist K. T. Mau, and of my own comments as consulting engineer.

Mr. HOLMAN: "We lit up our center burner kiln June 9th at 8 p.m., which will give you an idea of our anxiety and need of lime. For the first week we were interrupted by oil pump, recirculating fan motor, and other troubles to such an extent that it was hard to tell what the score was. However, after the second day it was evident that we were making better gas than the old kiln so we shifted our absorption towers to the new kiln."

Mr. MORGAN: "Mr. Holman is also writing to set your mind at ease. I will say right off that everyone is very much pleased with the results achieved and we are going ahead with revision of the other kiln."

Mr. AZBE: "When I received these communications I was greatly relieved. I had been plenty worried because there were just too many new things being tried."

"Gasify" Oil Fuel

"First of these was the system of hot gas recirculation, which has proven out previously on dolomite kilns but never was tried on one burning high calcium stone. In this respect there is a big difference as any dolomite kiln has a long 1000 deg. F. zone, ideal for withdrawing recirculating gases. However, this zone does not exist in a high calcium kiln, so in this case the gases must be withdrawn at around 1400 deg. F., to satisfy thermal laws.

"Second, oil burning had never been tried in this manner in a lime

plant. While it is customary to say that an oil burner atomizes the oil, that really is not actually the case, it just sprays it and simply acts as a sprayer. So oil can be introduced 'sprayed,' which is not very desirable, or 'vaporized,' which without considerable heat, is impossible to accomplish. The most desirable manner, on the other hand, would be to introduce it gasified, and that is what the cen-

ter burner accomplishes. Fig. 1 shows the system not exactly as it was originally installed, but modified and improved and as used on the second kiln.

"It consists of a gas offtake pipe located deep down in the kiln, a recirculating fan and a center burner.

"The finely atomized and heated oil is sprayed into this specially constructed vaporizing chamber of the center burner where, upon coming in contact with the hot oxygen and CO₂ of the recirculating gases, it gasifies, entering into the lime charge as a very hot combustible gas mixture."

Mr. HOLMAN: "What happens in the gasifier I really do not know. I do know that the oil, when CO₂, O₂ and N ratio is right you have in the center burner neither a smoky nor a clear visible atmosphere but a dark transparent orange glow with neither smoke nor flame. The product of this mix burns in the kiln with yellow or violet colored flame, much the same as our city gas flame, which is oil gas."

Mr. AZBE: "We all know that the softer the lime is burned the better it will be. In the case of dolomite lime one can virtually destroy all its value through too hard burning; whereas in the case of high calcium, that is not quite so true, the exact degree of harm depending on several factors. One of these is the amount of impurities, their nature and distribution; another is the form of stone. A regular sized piece will not be damaged as much as one irregular in size because it will lack projections which normally, because calcined first, acquire the high temperature of the hot zone earliest and remains at that temperature longest.

"The Hawaiian stone is coral in nature, so in the main 'Puka,' with many 'holes' as Fig. 2 shows, is about as ready to calcine and to over-burn as any. To obtain a high quality of lime with such stone, long exposure to low heat was imperative, as contrasted to ordinary short exposure with high heat, as it is not so much time of exposure which does the damage but high temperature. This is particularly true when the 'Puka' stone is mixed with some dense stone,

*Consulting engineer.

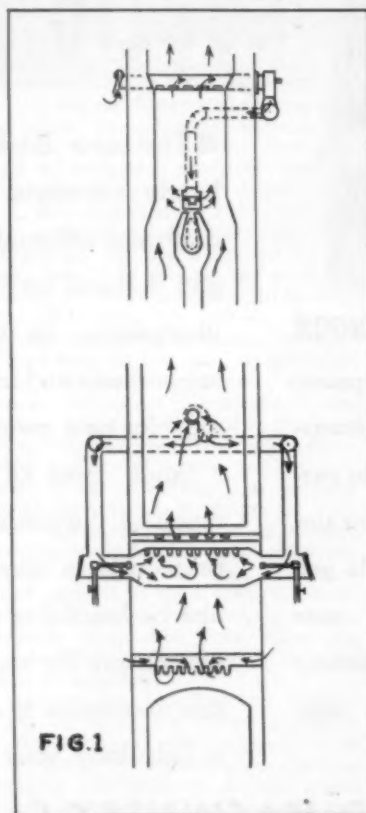


Fig. 1: Azbe kiln for gasified oil as fuel. Center burner is gas producer proper. Hot gas offtake is located at the end of dissociation zone. Through offtake air is drawn from the outside and hot gases from the kiln, the two combining to a hot mixture which is blown by fan into the center burner and injected into the hot gas stream in a finely atomized state

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Chancery Bldg.

CO-10

for then, in an effort to get rid of the core in one, the other is damaged.

"This can only be avoided by not allowing high temperatures to prevail. But oil is notorious in that respect and high local temperatures are normal. Previously, recirculation had to be practiced by the Eldred system of low temperature gas recirculation, but efficiency was impaired, and that cannot be afforded with such a high cost fuel as oil, particularly when high strength CO₂ gas was as important as it is here.

"In converting this kiln, everything was wrapped together with the Azbe hot gas recirculation system, an oil vaporizer system, as well as the application of the center burner to oil gasification. All three were dependent on each other.

"I anxiously awaited word about results because it was so very important from the standpoint of Gaspro, and also because the system had far reaching potentialities for hundreds of kilns with either oil or any other fuel. While Messrs. Renton, Morgan and Holman were striving to improve their plant, they were simultaneously also laying the basis for a new system of lime burning to be of benefit to the lime industry in general. It was not all smooth sailing. First the right equipment was not available, it would be difficult enough to obtain a suitable fan on the mainland, and many times more so out on a Pacific Island, but these men knew how to overcome difficulties."

No Side Burners in Second Kiln

MR. HOLMAN: "The second kiln will have no side burners, only the center burner with an improved gasifying chamber. Six gallon an hour atomizers are very difficult to make and control. If we can change it to two at 20 gal. an hour it will simplify things. Here I want to compliment Mr. Morgan on his ability to make atomizers that have worked satisfactorily at as low a rate as four gallons an hour on heavy fuel oil. I think that is something to be proud of."

MR. MAU: "Major improvements in the second kiln are (1) Better gasifier and (2) greater velocity in flow of the gasified oil. The enlargement at both ends of the center burner permits more complete gasification of oil with less carbon residue as the result. By having fewer gas ports, the gasified oil is forced by its high velocity to the sides of the kiln where it is burned. These changes plus smaller, but more important ones, helped materially to give a better kiln. From the very start, the rock-oil ratio showed a decided jump. At present the flue gas runs 29.3 percent CO₂, 27 percent O₂, and one-half percent of CO is usually present in the flue gas. At the same time the gas from the offtake pipe may not show any CO. You can guess that since the

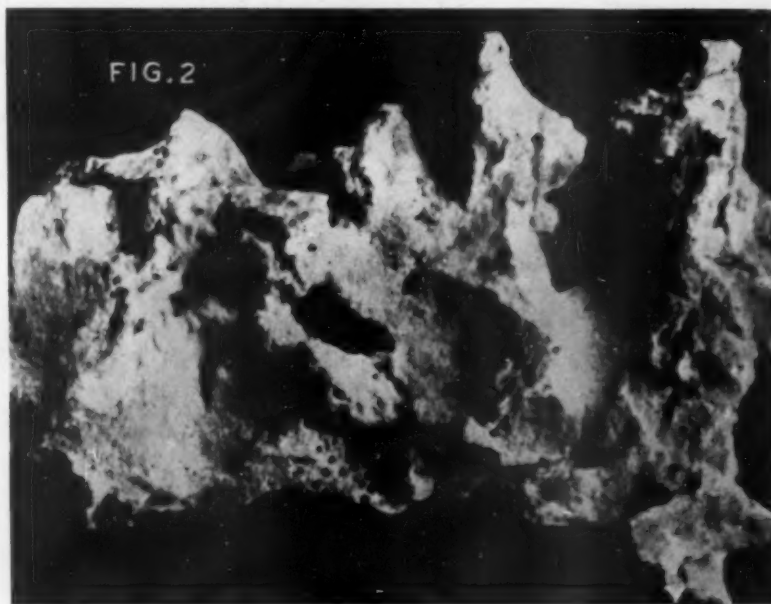


Fig. 2: Hawaiian type of limestone which is of coral origin

operation of the new type boiler and second center burner kiln, the CO₂ production has increased considerably. There have been no complaints about obnoxious odors yet. The daily production of hydrated lime is nearly 30 tons."

MR. MORGAN: "The temperature shown by a thermo-couple just below the offtake pipe usually runs between 1360 deg. F. and 1440 deg. F. This gives a temperature of 700 deg. F to 750 deg. F. at the burners when we have about the right mixture of air and gas. There is a drop about 100 deg. F. between the blower and the fan side center burner where we have a dial thermometer. We have about 2 in. of lagging on the piping but none on the blower or burners. It is necessary to atomize the oil very well in order to get it to vaporize. Our present burner tips throw some oil on the wall where it builds up carbon, so I will try and make tips that will atomize well but give a very narrow cone of spray. If the gas temperature is too high or if there is flame in the center burner-gasifier, the oil cracks before it is vaporized and smoke results. It seems that once smoke is formed it is very hard to burn, even though it is mixed with air and travels through several feet of hot lime."

MR. HOLMAN: "Our kiln hangs well, it is easily brought down and it is just about impossible to over-burn the lime. This I think is the reason for increase in available CaO."

MR. MORGAN: "We are making much better lime with the new kiln. We get almost no over-burned lime and comparatively little core, most of that in large and solid pieces of

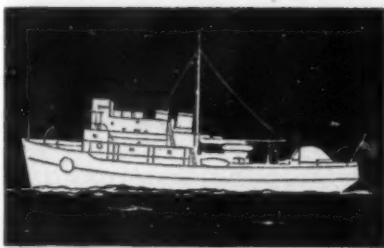
stone. Hydrate screen tests run about 99.7 through 200 and 98.5 through 300-mesh, with a CaO availability of better than 67 percent. When our men get thoroughly broken in on running the new kiln, I think we will be able to run about 70 percent available CaO. The hydrate is whiter and has much more plasticity than that from the old kiln."

Low Oil Consumption

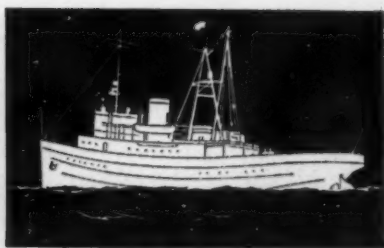
FROM PRESIDENT ALLAN RENTON: "Dear Victor: You undoubtedly know from reports of Messrs. Mau, Morgan and Holman that the center burner is working efficiently. We are getting about 25 tons of lime from the kiln a day. Oil to limestone ratio is about 10.9 of limestone per pound of oil. This compares to previous consumption of 6.7 to 7.3 for June and July of last year. What is more important, however, is that the lime plant is operating smoothly and with the same unskilled firemen who were formerly employed. We thought that it would be necessary for us to secure experienced firemen who understood the English language more readily than the Filipino firemen, but the latter have caught on to the trick of the center burner and we have had very little trouble.

Aloha—Allan."

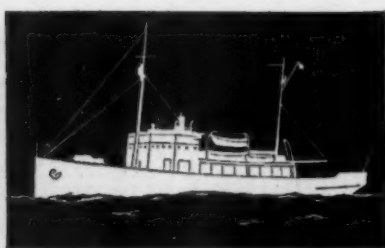
MR. AZBE: "These results were transmitted to R. E. Tremoureux, president United States Lime Products Corporation, San Francisco, who operates plants at Las Vegas, Nev., and Sonora, Calif. In these plants there are three rotary kilns and quite a number of vertical kilns, all oil fired. The vertical kilns have about as low oil consumption as any we



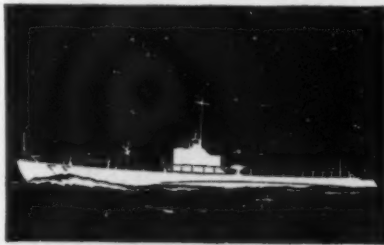
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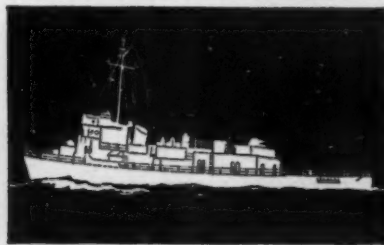
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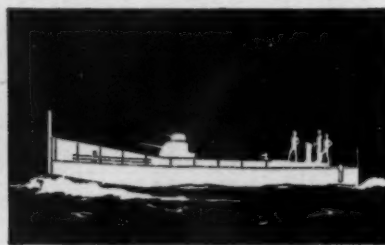
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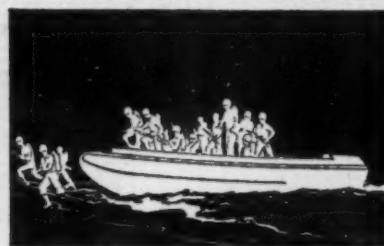
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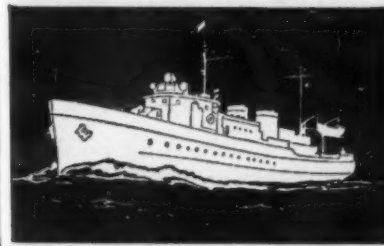
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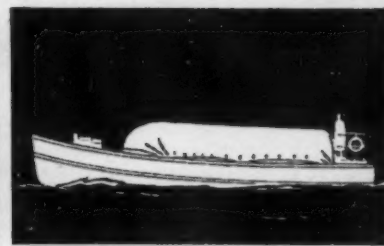
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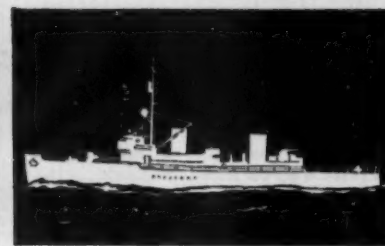
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10. THIS IS A _____



11. THIS IS A _____



12. THIS IS A _____

How many can you identify?

These boats do the "leg work" for our fleet. Their jobs are not always spectacular—but each has a critical assignment in the blueprint for victory, none must fail at a moment of decision. That's why the Diesel engines in so many of them are lubricated with Standard of California's RPM DELO.

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Ask your Diesel engine manufacturer or distributor for the RPM DELO supplier in your vicinity

STANDARD OF CALIFORNIA

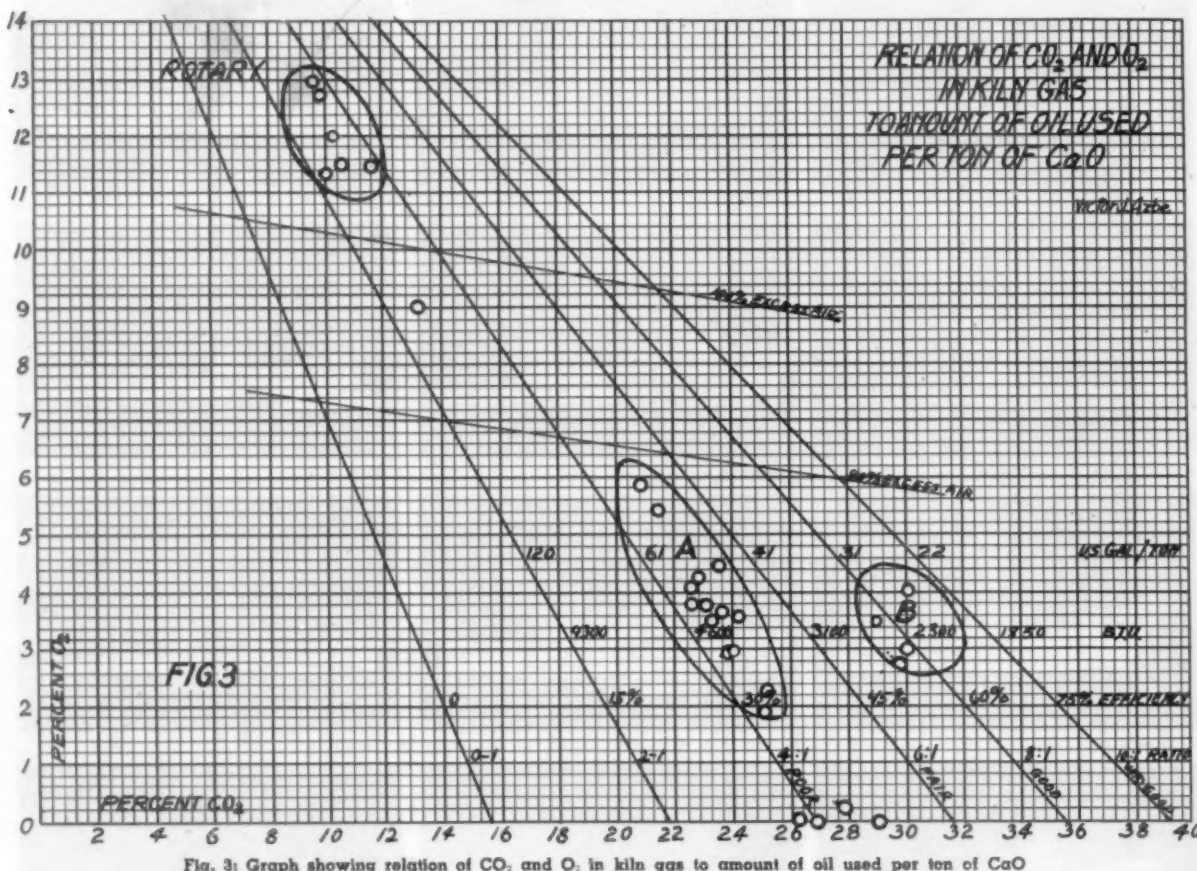


Fig. 3: Graph showing relation of CO_2 and O_2 in kiln gas to amount of oil used per ton of CaO

heretofore heard of, although this may be due to some dolomite being burned in these kilns. But that would make the Honolulu performance show up even better."

MR. TREMOUREUX: "It is very interesting. I did some calculating on the results obtained in Honolulu and our results at Sonora. Tabulated they are as follows:

	Bbls. of Oil Per Ton Lime
Honolulu:	
Prior to Installation of center burner	1.36
After installation of cen- ter burner875
Sonora:	
Vertical kilns estimated...	1.12
Rotary kiln	1.78
Average vertical and rotaries 10 months 1943.	1.42"

Mr. Azbe: "The Gaspro organization is constituted for continual advancement; they embrace within themselves a great variety of talent. Mr. Renton never allows conditions to become static, and this new lime burning system in charge of Messrs. Mau, Holman and Morgan is in good hands and even better results will be forthcoming, from which not only Gaspro, but many others, will benefit.

"They now have accomplished

something which every combustion engineer knows is contrary to general experience; namely, that of securing higher efficiency with lower temperatures. Higher efficiency always is associated with higher temperatures and higher temperatures present all

sorts of difficulties, in the particular case of lime kilns, short life and over-burned lime. So it is really a big step ahead for the lime industry, that in this most difficult case, with a fuel notoriously difficult to handle, and

(Continued on page 96)

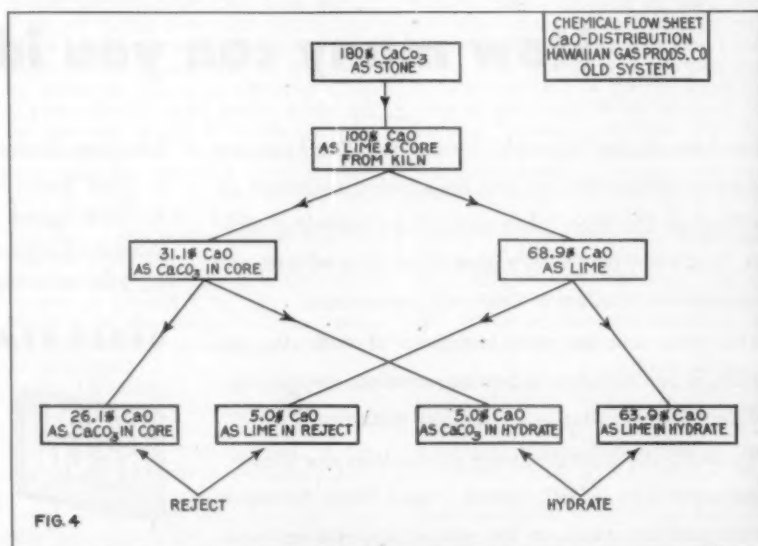


Fig. 4: Chart showing CaO distribution resulting from the old system of burning



There is a Barber-Greene to meet your material handling problems—from pit or quarry to stockpile to truck to processing plants. Portable and Permanent Conveyors of standardized sectional construction for rapid set up and easy alteration. Bucket Loaders for high capacity, low cost loading of trucks from ground storage. Write for literature.



PORTABLE CONVEYORS

LEFT: 60' B-G Belt Conveyor mounted on swivel truck stockpiling from portable crushing plant in gravel pit.

BUCKET LOADERS

CENTER: B-G 552 Bucket Loader loading truck from processing plant stockpile. Feeding spirals give B-G Loader excavating ability and positive feeding of buckets.

PERMANENT CONVEYORS

Top photos show B-G Permanent Belt Conveyor used to supply aggregate to bin for batching to ready mix trucks. Raw aggregate is dumped into feeding hopper at right by trucks and B-G Conveyor elevates aggregate to bin.

44-23

BARBER-GREENE

AURORA, ILL.

LET'S ALL BACK THE ATTACK



FEBRUARY, 1944

95

Lime Forum

(Continued from page 94)

most inclined to create excessive temperatures on the one hand, and with a limestone mixture of particles which at once are dense, hard, loose, soft, of extreme range in size, and of a structure and composition very easily over-burned, that results so superior to any before were attained.

"It is a system designed by myself but the credit is as much theirs; they had plenty of difficulties mastering it, smoothing it out, plenty of chances for scrapping it too, but they are not the kind. This company is called by the Army and Navy the 'Leading

Civilian Defense Plant in the Hawaiian Islands," and they are in fact, spirit and all—they fight the battles as battles should be fought, they determine an objective, push forward, give ground when necessary but never retreat.

"The whole was critical, not only on account of high oil consumption, low kiln production and poor lime, but mainly because CO₂ gas which was so badly needed by the Navy and Army could not be extracted in desired quantities from the overly lean kiln gases. One needs gas of about 30 percent, not 18 percent, for efficient functioning of absorbers.

"Fig. 3 is a chart for determining

oil fired lime kiln efficiency from kiln gas analyses. If CO₂ and oxygen in the waste gas are known, then from the chart one can obtain a performance rating of either poor, fair, good, and very good. Of course the 'very good' is rather steep, but one has to have something to shoot at. I have little doubt but that eventually the Hawaiians will reach it. Even 'good,' however, is better than consistent performance of any former lime kiln.

"In addition to this rating, the chart gives gallons of oil per ton of lime, B.t.u. per ton, ratio of lime to fuel and kiln efficiency. Group A on the chart shows former performance and group B present. The two are contrasted below:

	Group A Old Per- formance	Group B New Per- formance
Rating	Poor	Good
Gallons per ton lime	55	34
B.t.u. per lb. of lime	4100	2500
Kiln Efficiency...	34%	55%
Ratio Lime-to- Fuel	4.8-1	7.8-1
Capacity Tons ..	12	25

"But the above does not tell the whole story about Group A. The Hawaiian rock is so difficult to burn that no American producer would care to contend with it. When sorting the lime on the conveyor, the hard-burned portion is so hard-burned, it may as well be thrown away. Then if it is so soft-burned that it contains core, it usually must also be thrown away. Core is so fragile that in the attempt to hammer off the lime, it would crumble up and mix with the lime anyway and so more lime is lost.

"The combination of such lime with a poorly arranged kiln poses a real problem and creates a desperate situation, as the flow-chart, Fig. 4, made up by Mr. Mau, shows. It is for CaO. Of the 100 lb. of CaO, in 183 lb. of stone, 68.9 lb. appeared in the burned lime and 31.1 lb. in unburned core. Of this, five percent of equivalent CaO in the lime was thrown out by the hydrator and 5 percent from the core appeared in hydrate. The rejects were the very high figure of 31.1 percent, and the hydrate was of a greatly impaired quality. Over 30 percent of the original stone was hauled away to waste, as stone or rejected lime, and due to this latter condition, oil consumption per ton of lime was not 55 gal. per ton, but 64 gal.

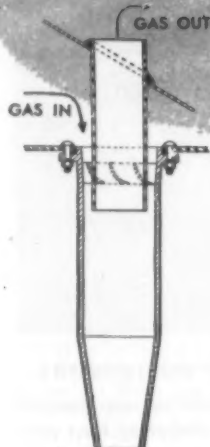
"Instead of 27.3 gal. per ton of lime, it was 48 gal., and instead of 1.5 tons of stone per ton of hydrate, which includes 10 percent core and rejects, it was 2.25 tons."

Named Vice-President

F. M. KETTENRING, president of the Graystone Concrete Products Co., Seattle, Wash., has been named vice-president of the Seattle Construction Council.

THE MULTICLONE IS

Simple!



Cross-section of the
MULTICLONE Tube

The Multiclone is the product of 36 years research and development in suspension recovery, starting with the first commercial application of Cottrell Electrical Precipitation. Our experienced engineering department will gladly offer helpful suggestions on the solution of your recovery problem!

Equipment for the collection of dusts and other suspended particles from gases should be simple in design and operation to insure sustained recovery efficiency. The MULTICLONE offers these important advantages...

ITS CLEANING action is unusually simple and positive. The gas is whirled in a rugged cast iron separating tube where it is centrifugally cleansed of fine as well as coarse suspensions. There are no screens or filters to require frequent cleaning or replacement... no high speed moving parts to repair or maintain... nothing inflammable for hot gases to burn!

The recovered suspensions are completely discharged from the collecting tube as quickly as they are separated from the gas. Therefore, collected dust particles do not choke or restrict gas passages after continued service, enabling the MULTICLONE to maintain the same high recovery efficiency throughout years of heavy duty operation!



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140 South Dearborn Street, Chicago 3 • Hobart Bldg., San Francisco 4, Calif.
Precipitation Company of Canada, Ltd. • Dominion Square Bldg., Montreal

A SENSATIONAL NEW CRUSHER!

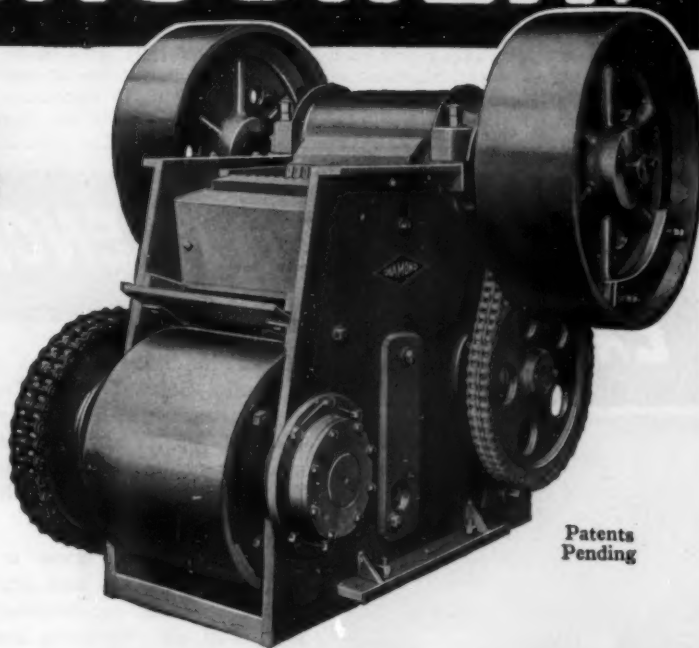
The greatest advance in
crusher design in 30 years



"DUAL-ACTION"

It's BOTH a

Jaw and Roll Crusher COMBINED in ONE Unit



Patents
Pending

The new DIAMOND "DUAL-ACTION" crusher is so revolutionary in design and its performance is so sensational that it is almost unbelievable.

Here are a few high lights of DIAMOND "DUAL-ACTION" performance and construction:

1. "DUAL-ACTION" *more than equals* the combined production of separate jaw and roll crushers of comparable size.
2. Uses only half the power, has *less* than half the weight, and costs considerably less than the two conventional units.
3. **NO PACKING** — positive forced feed prevents it. Less fines — very few slivers or flats.

IT'S A NATURAL FOR PORTABLE PLANTS

The DIAMOND "DUAL-ACTION" crusher makes possible a smaller, lighter and vastly more efficient portable plant. It will be shorter and lower with shorter main conveyor. The "DUAL-ACTION" saves more than 50% of space and weight required for separate jaw and roll crushers — and gives you an amazing capacity at radically reduced initial cost of plant.

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No matter what type of crushing you do, you cannot afford to overlook the new production and profit possibilities created by this startling new crusher.



WIRE, PHONE OR WRITE FOR BULLETIN D-44-M,
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DIAMOND IRON WORKS, INC.

ESTABLISHED 1880

AND THE MAHR MANUFACTURING CO. DIVISION

1800 SECOND STREET NORTH



MINNEAPOLIS 11, MINN.

FEBRUARY, 1944

(Continued from page 86)

Schedule B. Among the items released by this amendment are bins and batchers, provided manpower and such components as engines and ball bearings can be released. It is believed some non-military distribution would soon be available.

The repair part problem is still complicated although every effort is being made to simplify it. The real bottlenecks are the components such as crankshafts, and not shortage of production facilities of engine manufacturers, etc. A new revised form

of No. 1319 will shortly be used in applying for items on Schedule A, which will greatly simplify the processing and eliminate an estimated 400,000 pieces of paper. The new 1319 will probably be used instead of the present 2910. This new form would be filed with the regional W.P.B. office and cleared first through the mining division and then the construction machinery division.

Every effort is being made to keep producers' inventories of repair parts to a minimum, to discourage hoarding of parts. There are several new

provisions in 1319 which are designed to speed repair parts of old equipment.

Limitation Order L-196 was amended January 18 and the number of items governed by it was reduced to three—shovels and cranes, tractors, and heavy-duty motor trucks. All are critical and hard to find. Other types of construction machinery are becoming easier to obtain. Crawler tractor parts are particularly hard to obtain, but the situation shows signs of clearing in the first quarter of 1944.

Discussion

The discussion following developed additional information as follows: Producers are no longer required to report, for W.P.B. inventory lists, their construction equipment. Reports will be required only of contractors and distributors. In filing applications for repair parts for equipment manufactured prior to 1930, the new 1319 will be all that is required. The concurrent filing of 2910 will be eliminated. When filing for new equipment under L-192 the 2910 must also be filed with the mining division. The mining division still has the authority to obtain AA-1, AA-2, or AA-X priority, according to the urgency of the need.

Salesmen's Problems

ONE AFTERNOON SESSION of the convention of the National Crushed Stone Association at New York City, February 1, was devoted to the discussion of sales.

A. T. GOLDBECK, engineering director of the Association, opened the session, with E. K. WEBSTER, secretary-treasurer, Pekin Stone Products Corp., Lockport, N. Y., presiding. Mr. Goldbeck gave a brief resumé of the short course for crushed stone salesmen, held in Washington, D. C., the week before, which was attended by over 70 men. This course was described in ROCK PRODUCTS, January, 1944, issue. It was voted an unqualified success.

The discussion from the floor was designed to bring out suggestions and criticisms. There were no criticisms, nothing but praise from both those who attended the school and those who didn't. The only suggestions were for a continuance and expansion of the school. Several favored regional meetings, using local laboratory facilities of State Universities or State Highway Departments for demonstrations of testing technique, which seemed particularly of interest to the salesmen. Other suggestions were that the salesmen be furnished with textbooks or transcripts of the proceedings; also that the course be broadened to include instructions on selling stone for filters and other special uses.

(Continued on page 102)

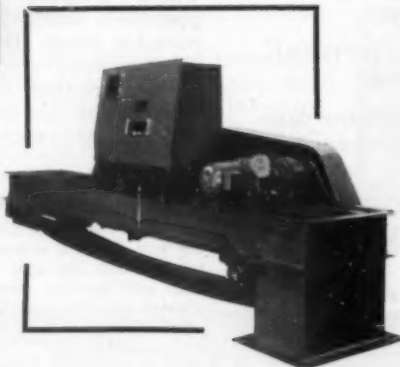
A TEAM OF EFFICIENCY EXPERTS..



FEEDOWEIGHT automatically feeds, weighs, totals and records the amount of material fed. Power operated feed and control gate for correct proportioning. Feeds two or more materials in batch or continuous proportioning.

Plants handling Cement, Lime, Gypsum, Sand, Gravel, Crushed Stone, etc., can profitably use the **MERRICK** team for faster, more accurate, more efficient production—**WEIGHTOMETER** and **FEEDOWEIGHT**.

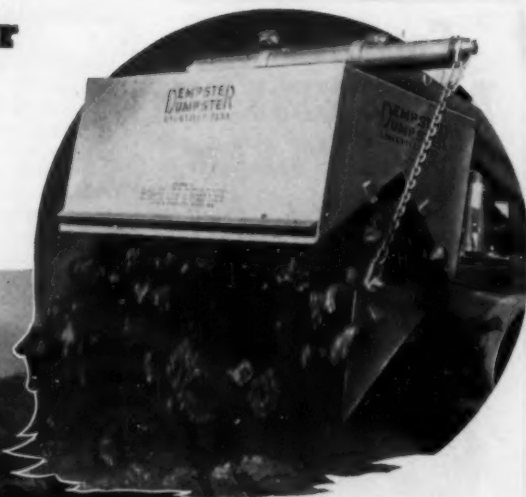
WEIGHTOMETER gives a continuous, automatic, and accurate weight record of materials in transit at an extremely low operating cost. All producers of bulk materials requiring handling by belt conveyors need this dependable check on production figures supplied by **MERRICK WEIGHTOMETER**.



The uses of Merrick Automatic Continuous Weighing and Feeding Machines are varied. It will pay you to find out how they can apply to your particular job. Send for illustrated catalog.

MERRICK SCALE MFG. CO. 188 AUTUMN STREET PASSAIC, NEW JERSEY

How the Dempster-Dumpster Speeds Work on the Inter- American Highway in Costa Rica



Construction Photos,
Courtesy Pub. Rds.
Adm.



Photos at left show
hauling, dumping
and low loading
positions of a body.



★ From North America to South America by motor car. That is what the Inter-American Highway will mean, when completed, to bring the Americas together as never before.

Seventy-one miles of this remarkable highway—in Costa Rica—is being built at unusual speed with the Dempster-Dumpster—the truck unit that permits the use of any number of bodies you may desire.

Have you ever seen a truck with ten or perhaps twenty, or even thirty bodies? That is just what you get with the Dempster-Dumpster. Bodies are placed at convenient spots for loading as shown by the photos above of the Dempster-Dumpster at work on the Cargago-San Marcos section of the Inter-American highway in Costa Rica, now under construction by the Contractors—Ralph E. Mills Co., of Roanoke, Va. As these 3 ton capacity bodies are loaded, truck equipped with Dempster-Dumpster hoisting unit hoists, hauls and discharges the load and returns

empty body to position for reloading while truck is busy hauling and discharging other loads—an endless cycle, saving trucks, gas, tires and time.

Wherever loading is done by hand labor, one Dempster-Dumpster will do the work of four or five regular trucks. Bodies are available in capacities of from 2 to 10 cu. yds. for handling any type of materials in road work, industrial plants, mines and other uses. Don't put this advertisement down until you have written Dempster Brothers for free complete operating manual. The Dempster-Dumpster may be the equipment you need NOW. Dempster Brothers, Inc., 324 Springdale, Knoxville, Tennessee.



There's a **DEMPSTER-DUMPSTER** built for every Material Hauling Job

For Efficient MATERIAL HANDLING

SYNTRON

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ELECTRIC VIBRATORS



With adjustable power on these troublesome bins, hoppers and chutes to keep their contents agitated and free-flowing.

Little 4 lb. models — up to big 500 lb. sizes.

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"Vibra-Flow"

VIBRATORY FEEDERS



Under these bins and hoppers to regulate their discharge by rheostat control of rate of flow.

Capacities of from Ounces to 500 tons per hour.

**NO MOTORS, GEARS, CAMS,
BEARINGS OR BELTS TO
WEAR OUT**

Reduce Labor Costs
Increase Production

SYNTRON CO.

450 Lexington Homer City, Pa.

Chemist Corner

(Continued from page 68)

during the manufacturing procedure, permits the manufacture of cements for all general purposes. For example, the standard "Atoyac" cement now being produced by the Landa Co., is much more plastic than the standard Landa portland cement. Having identical setting properties, the strength of the "Atoyac" cement is accelerated and shows a continuous increase over a period of time. The heat of hardening of "Atoyac" cement is 50 percent less than that of the standard Landa portland cement. "Atoyac" cement has about 15 percent greater volume for unit weight than portland cement, resulting in a higher concrete yield. "Atoyac" cement, after the seven day test period shows a phenomenal increase in strength that is not experienced by standard portland cements. "Atoyac" cement, with slight variation in proportioning of materials and in manufacturing procedure, is more resistant to the action of alkali ground and sea waters than are standard portland cements. Similarly, "Atoyac" cement may yield high-early-strength without detriment to its latter day strengths, and at the same time develop an extremely low heat of hardening.

Herewith are the average monthly test results in "Atoyac" cement as taken from our laboratory records since it was produced and placed on the market in direct competition with our standard Landa portland cement. (Since the above was written, and as a result of the increased demand for "Atoyac" cement, the production of Landa portland cement to meet the small demand, became a nuisance, and its production was discontinued.)

The "Atoyac" brand has been accepted by engineers and architects throughout Mexico, and has been used in all types of concrete constructions where portland cements have previously been used.

For example, it has been used by the Federal Road Commission in the construction of bridges on the Puebla-Tehuacan highway, for street paving in Puebla, Orizaba, Veracruz, Cordoba, Merida, Tapachula, and other cities scattered throughout central and southern Mexico. It has been used in the fabrication of mosaics, tiles, concrete railway ties, dams, reservoirs, port works, waterworks and drainage systems, and general constructions of residences, office buildings, warehouses and shops.

(To be continued)

Tennessee Phosphate

It is freely reported, though not yet officially announced, that the Victor Chemical Works will double its phosphorus furnaces at Mt. Pleasant, Tenn. There is also activity in Williamson County where some 14 tracts totaling 2000 acres are said to be under option to an agent dealing with General Chemical Co., branch of Allied Dye & Chemical Co., New York, N. Y. All signs point to a very active business for 1944. There is considerable agitation in this area for legislation which would require phosphate mining companies to fill worked out pits. If such legislation is passed it would seriously cripple the expansion of the phosphate industry in this field as the cost would be prohibitive.

Penn. Post-War Roads

GOVERNOR EDWARD MARTIN of Pennsylvania has reported that his State is planning to construct a half billion dollars worth of new highways immediately after the war, and he said, "his program can be accomplished without additional state taxation." Governor Martin suggested that the federal government should follow the sound practice of using its automotive taxes for road construction.

SPECIFICATIONS FOR PORTLAND-POZZOLAN CEMENTS

Chemical Analyses	October Percent	November Percent	December Percent
SiO ₂	26.61	26.70	26.17
R ₂ O ₃	10.33	10.16	10.93
CaO	55.31	55.53	54.57
MgO	1.94	1.97	1.93
SO ₂	2.02	1.90	1.94
Ign. Loss	3.37	3.34	3.66
Insoluble Residue	12.25	12.81	13.66
Physical Tests			
Fineness No. 200 M	93.2%	93.8%	95.1%
Initial Set	2 hrs. 37 min.	2 hrs. 45 min.	2 hrs. 32 min.
Final Set	5 hrs. 10 min.	5 hrs. 17 min.	4 hrs. 57 min.
Specific Gravity	2.93	2.90	2.88

Tensile Strength

1:3 Sands

At Age—24 Hours

3 Days	216
7 Days	314
28 Days	364
3 Months	473
	589

Pounds Per Square Inch

222	227
324	346
370	399
487	507
not out	not out

227
346
399
507
not out



**No time for—
absentee wire rope**

In a mechanized war, fighting equipment *dares not* be absent; industrial equipment *should not*. Even though your wire rope is carrying many an extra burden, proper care will prolong its life. So . . . make sure that inexperienced operators understand its *correct* use. Gear up rope inspection. Avoid damaged sheaves and drums.

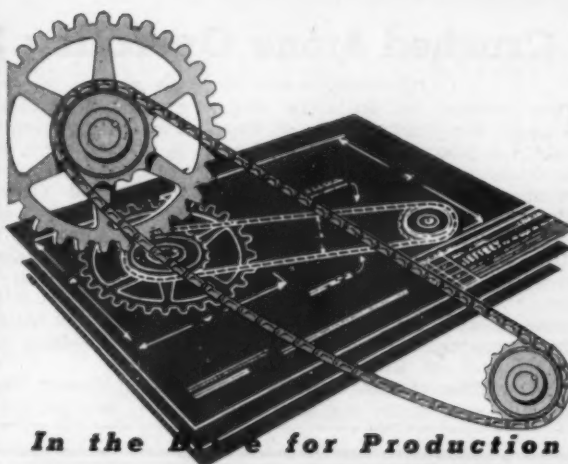
The prime way to get top rope performance is to *start* with the stamina of Preformed Yellow Strand. Install it on power shovels for hoist and swing lines, and as crowd and rack ropes . . . on dragline machines, too, for hoist and drag lines . . . and on clam shells for holding and closing lines. Preformed Yellow Strand is a quarryman's mainstay that *will stay* on the job.

Broderick & Bascom Rope Co., St. Louis
Branches: New York, Chicago, Houston, Portland, Seattle
Factories: St. Louis, Seattle, Peoria

**YELLOW
STRAND
PREFORMED
WIRE ROPE**



**I & B's Army-Navy "E" Flag, Four Times Won, Means that . . .
We Serve the Government as We Serve Industry: with Determination
That Our Entire Energies and Resources Shall Help to Win the War**

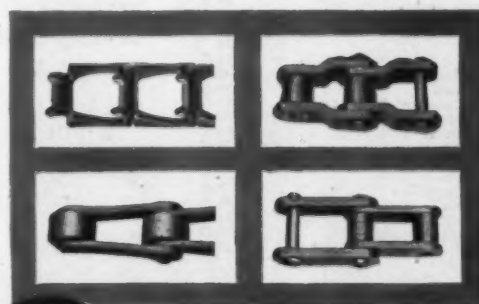


In the Race for Production
**A PLAN IS NO BETTER
THAN ITS PARTS**

No matter how skillfully a plant is laid out — how efficiently a production line is planned — non-stop operation depends on the strength, quality and wear resistance of the individual working parts.

The combined skill of Jeffrey engineers, technicians, metallurgists and chemists is represented in every single Jeffrey maintenance part you buy, though it's only a single length of chain, a pulley, gear or sprocket.

Whether your problem is one of good parts, good plants or good production . . . think of Jeffrey first.



THE LORNEY MANUFACTURING COMPANY
 ESTABLISHED 1877
 715 W. North Fourth Street, Columbus 14, Ohio

Manufacture of Furniture and Cabinets	General Contract Work	Design and Construction of Buildings	Construction of Bridges and Highways	Building of Steel Structures
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Crushed Stone Operating Session

(Continued from page 98)

THE session for operating men, under the chairmanship of Ted Cooke, was planned to bring out free discussion between producers and equipment manufacturers and it is unfortunate that the meeting had to be cut short.

L. C. BIBBER, welding engineer, Carnegie Illinois Steel Corp., in his paper, "Welding—A Friend in Need," instead of speaking generally on the subject, concentrated on metal arc welding and its fundamentals. He had some slides to show examples of good and poor welds and described

the reasons for the failures. In the crushed stone industry, he said it is important to have knowledge of when to preheat parts to be welded.

In reply to a question as to the best methods of preheating parts, Mr. Bibber said it is impossible to guess temperatures and the use of a thermometer is essential. The easiest way to heat is with an oxy-acetylene torch or a gas or kerosene torch, he said. Most of his remarks were confined to welding ordinary structural steel.

J. Q. TAYLOR, New York Trap Rock Corp., said his concern had lost 100

men to the draft and had shut down two of four plants and transferred men in order to keep operating. Likewise, equipment has been transferred when needed, from the idle plants.

BRUCE CAMPBELL, H. T. Campbell Son's Co., said he followed the practice of shutting down on Monday instead of Sunday, for repairs, since Monday has proven to be a bad operating day.

TED COOKE, Lynn Sand and Stone Co., described the use of compressed air blasts to clean the dust out of stone at his plant, at the point of discharge of the stone from the bins through chutes in loading. Perforated pipes about three inches below the chutes, with a quick action valve, permit releasing a horizontal blast at 100 p.s.i. through the stream of stone. This procedure, according to Mr. Cooke, has saved many rejections, particularly in the smaller sizes of stone.

Mr. Taylor described his barney car-truck haulage system (described in *ROCK PRODUCTS*, January, 1943) which enables the hauling of 20 tons of crushed stone up a 11 percent grade in Chevrolet trucks.

As to the value of periodic inspection by service men of manufacturers of equipment, there was some difference of opinion. Some of the equipment manufacturers suggested that it might prove of value to producers to go out of their way to use the availability of such services. It seemed to be the general consensus, that much could be gained through mutual discussion of operating problems between equipment men and producers, toward the end of improving machinery designs to meet certain operating requirements.

In a discussion as to the desirability of equipment manufacturers establishing distributing depots for repair parts, several producers said it would cut down the inventories they are now forced to carry. An



"Ruggles-Coles" Class "XF" Dryer

One of the nine types of rotary dryers
designed and manufactured by Hardinge
Company, Inc.

Hardinge Equipment

	Bulletin No.
Agitators	31-C
Clarifiers	31-C
Classifiers, Air	17-B
Classifiers, Counter-Current	39-A
Classifiers, Hydro	31-C
Density Stabilizer	42
Digesters	38
Dryers	18-C
"Electric Ear"	42
Feeders, Belt	33-C
Feeders, Constant Weight	33-C
Feeders, Disc	33-C
Feeders, Drum	33-C
Feeders, Non-Flooding	33-C
Feedometers	43
Filters, Sand	39-A
Metal Reclamation	8-A
Mills, Batch	19-A
Mills, Conical Ball	13-D
Mills, Conical Pebble	13-D
Mills, Rod	25-B
Mills, Tube	18-A
Mixers, Slurry	31-C
Pumps, Diaphragm	32
"Ruggles-Coles" Dryers	16-C
Kilns and Coolers	16-C
Scrubbers, Conical	37
"Thermomill"	17-B
Thickeners	31-C

A recent survey showed
that Ruggles-Coles dryers are
drying over 150 different
materials.

If you have a problem re-
quiring the drying of any
material, let us recommend
the proper dryer.

Bulletin 16-C

HARDINGE

COMPANY INCORPORATED, YORK, PENNA.

NEW YORK CHICAGO SAN FRANCISCO TORONTO



W. H. Margraf, Marble Cliff Quarries Co.



Paul B. Conaway, Brewer & Brewer Sons, Inc., Chillicothe, Ohio

equipment manufacturer said that stocking too many repair parts in that way would be wasteful since machines do not break down all at once.

J. A. LAURENCE, superintendent, Liberty Limestone Corp., Rocky Point, Va., told of his use of electric clocks connected in with the switches on mills and crushers so that the wear of manganese steel could be determined in terms of operating hours. He also uses temperature recording meters on return oil lines in an endeavor to determine defects before crushers break down. Also, ammeters are used as a check for overloads.

Mr. Campbell said that he finds the use of grease in tubes of great value when lubricating electric motors and screen bearings, to prevent the application of too much grease which is sometimes more serious than too little grease.

A. B. RODES, Franklin Limestone Co., Nashville, Tenn., said that truck tire life in quarry service can be used to advantage in checking on the efficiency of road maintenance.

Broaden Membership Requirements

ONE of the resolutions adopted by the 27th annual convention of the National Crushed Stone Association in New York City, February 1, changed the requirements for membership in the Manufacturers' Division to permit including testing laboratories and other engineering services interested in this industry.

Post-War Addresses

LIMITATION of space has made it necessary to publish the addresses on Post-War business by Thos. S. Holden, Gen. Fleming at the National Sand and Gravel Association meetings and the addresses by James J. Skelly and C. H. Sells at the National Crushed Stone Association in the next issue of ROCK PRODUCTS.

(Convention Reports on page 106)

Handling Hard, Abrasive Granite with Amsco Dippers

When two jetties, each several miles in length, were built on the North Pacific Coast, the rock was quarried in the foothills of the Cascades and carried on cars by rail and barge to tidewater.

The rock was exceedingly hard, abrasive granite; the kind regarded by geologists and engineers as ideal for jetties because it will withstand the ceaseless attack of the ocean for long periods. By the same token, this rock is severely abusive to the wearing parts of the equipment which handles it.

But this type of service is where manganese steel dippers show up best. The 3-yard Amsco renewable lip dippers employed on this project gave the usual good account of themselves. A minimum of

interruptions for dipper repairs helped the five shovels to load 39 tons of rock daily.

The smaller material was scraped up and loaded by the dippers in the usual way, and the larger chunks were handled by a sling suspended from a dipper tooth as shown in picture A-250. The stress on the dipper is obvious, especially when rocks like those shown at the right on the flat car are loaded, but manganese steel — "the toughest steel known" — has what it takes.

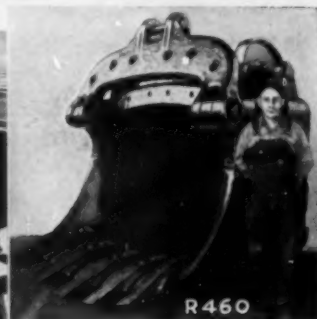
On many hard rock jobs, where continuous pounding, heavy loads and abrasion would quickly destroy ordinary buckets, you'll find Amsco dippers. The renewable lip is a feature of design supplementing the economy of the metal.

Ask for Bulletins 641-D and 641-S on Amsco dippers and power-shovel parts.



A-250-E—The jetty at low tide. Rock like this is rough on dippers.

R-460—Amsco 4½ yd. dipper—the type used on this project. All standard sizes from ¾ yd. to 18 yd. are available with renewable lips.



Amsco
AMERICAN MANGANESE STEEL DIVISION
Chicago Heights, Illinois

FOUNDRIES AT CHICAGO HEIGHTS, ILL.; NEW CASTLE, DEL.; DENVER, COLO.; OAKLAND, CALIF.; LOS ANGELES, CALIF.; ST. LOUIS, MO.
OFFICES IN PRINCIPAL CITIES

AMERICAN
Brake Shoe
COMPANY

Washington News

(Continued from page 35)

vision of Schedule 1, insofar as they were compatible with the purposes of the order.

Hard Facing Materials

W.P.B. PART 3294: General limitation order L-233 has been revoked with respect to Section 3294.151, governing hard facing materials. This revocation does not affect any liabilities incurred under the order. The manufacture and delivery of hard facing materials remain subject to all other applicable regulations and orders of the War Production Board.

Welding Rod for Repair Shops

W.P.B. PART 3175: Direction O. 10 to CMP regulation No. 5 has been revoked, effective January 28. Repair shops may obtain welding rod by the use of the rating assigned by CMP regulation No. 9A.

O.P.A. Cement Sales Regulation Is Revised

As a further move in simplifying manufacturer's record-keeping requirements, O.P.A. has announced that producers making sales of cement out of their normal market areas no longer will be required to report these sales to O.P.A.

Concrete Pipe Program

AMERICAN CONCRETE PIPE ASSOCIATION convention was held in the French Room at the Drake Hotel, Chicago, February 9 and 10. The program included the annual address of President W. E. Corbett on February 9, followed by reports of M. W. Loving, secretary-treasurer, T. J. Kauer, assistant secretary and Washington representative, and standing committees. In the afternoon there was an address by O. J. Porter, Senior Physical Testing Engineer, Department of Public Works, Division of Highways, California, on "Airport Design Problems." E. F. Bepalow, chairman, presented the report of the Technical Problems Committee. Movies were shown illustrating important concrete pipe installations. The annual dinner was held on the night of February 9. The session on Thursday, February 10, included a report of the Executive Committee, a consideration of the future work of Committee C-13, A.S.T.M., reports of the Resolutions and Nominating Committees, and the election of officers. A more complete report of this convention will appear in the March issue of ROCK PRODUCTS.

Certificate of Recognition

NATIONAL SLAG ASSOCIATION received unique recognition in 1943. Through the energetic work of H. J. Love, managing director, and his member

UNITED STATES OF AMERICA
WAR PRODUCTION BOARD



This Certificate of Recognition

for positive effort in the National Salvage Program of 1942-1943 is issued
by the Board to the

NATIONAL SLAG ASSOCIATION

H. J. Love
Managing Director

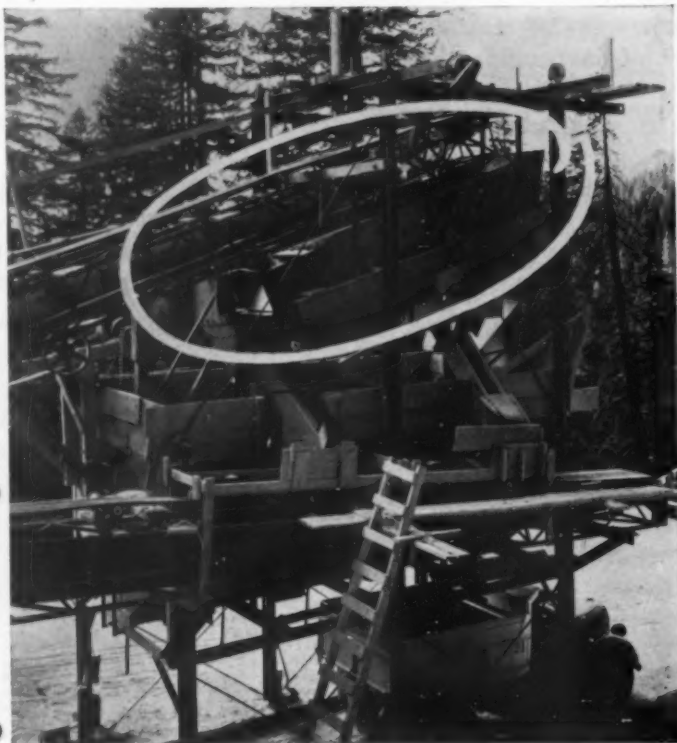
E. F. Bepalow
Chairman

Certificate awarded to National Slag Association for its excellent record in the national salvage program

companies, the association received special and distinctive recognition from the War Production Board for its contribution to the scrap-iron collection drive. In 1942, from a production of 19,122,718 tons of slag, the industry retrieved for war use 165,679 tons of metallic iron.

Norfolk Pipe Job

Bids are being received by the city of Norfolk, Va., for the laying of a 30-in. concrete pipe line from the 37th street pumping station to the intersection of Princess Anne Road and the Norfolk & Western Railroad; and the laying of 36-in. concrete pipe from Drivers, Va., eastwardly to a point near Deans Station. The first item will comprise 17,300 lineal feet of pipe, and the second item 12,800 lineal feet, also valves and fittings in each case.



4' x 12' Triple Deck Screen, Handling 2000 Tons Per Day of 18" Down Rock in a Temporary Plant

Simplicity Gyration Screens are at work in every state in this country, in Alaska, Canada, Mexico and other foreign lands. The reputation earned by these universally used screens is best expressed by this statement made by one of the army of satisfied Simplicity users, "It is hard to believe, but we are now getting 50% more capacity from our plant, with the only change in our equipment being the replacement of our screening unit with the same size Simplicity Gyration Screen. The cost of operation has also been greatly reduced."

A guaranteed Simplicity Screen produces results.

SIMPLICITY ENGINEERING COMPANY
DURAND, MICHIGAN

Dicalcium Silicate Solid Solutions

THE MANNER of combination of sodium oxide in portland cement clinker is the subject of a series of investigations at the National Bureau of Standards. In certain experimental preparations made in the course of this work, crystalline phases have been observed that, although known to be composed almost entirely of dicalcium silicate ($2\text{CaO} \cdot \text{SiO}_2$), yet exhibit optical properties differing from those of the $2\text{CaO} \cdot \text{SiO}_2$ of commercial clinker. These phases result when samples of $2\text{CaO} \cdot \text{SiO}_2$, to which small amounts of Na_2O and Al_2O_3 or of Na_2O and Fe_2O_3 have been added are quenched from temperatures of 1,450 deg. to 1,500 deg. C.

The nature of these crystalline phases has been studied by optical, thermal, and X-ray diffraction methods, and is reported in a paper by Kenneth T. Greene in the Journal of Research for January (RP1570). The data indicate that, at high temperatures, Na_2O plus Al_2O_3 or Na_2O plus Fe_2O_3 , enter into solid solution in the $2\text{CaO} \cdot \text{SiO}_2$, producing phases which are metastable at room temperature but which may be preserved by quenching. These metastable solid solutions have hexagonal crystal structures, and evidence was obtained that this hexagonal lattice is fundamental for the α form of $2\text{CaO} \cdot \text{SiO}_2$. In one of these preparations the α - β inversion temperature of $2\text{CaO} \cdot \text{SiO}_2$ is lowered from 1,420 deg. C. to $1,175 \pm 10$ deg. C. and in another to $1,180 \text{ deg.} \pm 10 \text{ deg. C.}$

When the hexagonal phases invert to the β form, the material in solid solution is precipitated as minute inclusions, causing the grains of $2\text{CaO} \cdot \text{SiO}_2$ to resemble those in some commercial clinkers. Many of the grains also exhibit a complex twinning structure similar to that often observed on the $2\text{CaO} \cdot \text{SiO}_2$ of commercial clinker. The data indicate that this twinning is produced by the inversion from the α to the β phase.

Idaho Phosphate Plant

J. R. SIMPLOT Co., Caldwell, Idaho, is reported to have received approval by W.P.B. for the erection of a super-phosphate plant at Pocatello, Idaho, according to a statement by E. R. Prevol, manager of the fertilizer operations of the company. The Simplot company, now operator of the largest dehydrator in the world and of extensive farm holdings, will invest an approximate million dollars in the phosphate plant which will be designed to produce 75,000 tons of superphosphate annually. The phosphate project also will have an acidulating plant that will produce approximately 84 tons of 100 percent pure sulphuric acid daily. The Simplot concern will not mine the phosphate, but will get its raw material from existing mining properties.



HOW NAYLOR PIPE SOLVED THE PROBLEM WHEN A LAKE GOT IN THE WAY

The scene was a wilderness with a rich deposit of ore buried beneath a lake. Efforts to mine by shaft methods were drowned out repeatedly.

Then engineers went in with pumping equipment and Naylor Lockseam Spiral-weld Pipe and literally "moved" the lake to distant natural drainage.

The tough job of eliminating water and quicksand was simplified by the structural advantages of Naylor Pipe and today a battery of power shovels dig deep to unearth the buried treasure.

The light weight, greater ease of handling and installing, quicker connections, closer conformity to the terrain, leak-tightness, safety and, above all, the ability to handle pressures normally requiring heavier-wall pipe have made Naylor Pipe first choice on applications like this.



Naylor pipe from sump merges at valve station with main 20-inch line.



Naylor 20-inch pipe line is main discharge for mine water. Note conformity of pipe to terrain.

NAYLOR PIPE SERVICE

Dredging • Hydraulic Sluicing
De-Watering • Ventilating
Exhaust and Intake • Vacuum lines
and other high or low pressure lines.
Sizes from 4" to 30" in diameter.



LOCKSEAM
SPIRALWELD PIPE

NAYLOR PIPE COMPANY

1237 East 92nd Street
Chicago 19, Illinois

Agricultural Limestone

P. E. HEIM, sales manager, agricultural limestone department, Carbon Limestone Co., Youngstown, Ohio, presided at an afternoon session of the National Crushed Stone Association devoted exclusively to the problems of agricultural limestone producers. After a few brief introductory remarks, he introduced **DONALD W. AITKEN**, Division of Special Programs, Agricultural Adjustment Administration, Washington, D. C.

A.A.A. Program

Mr. Aitken, speaking on the subject of the program of the A.A.A. for stimulating the use of agricultural limestone in 1944, gave some very interesting figures, for which there is not space in this issue. These figures showed that while farms not participating in the A.A.A. soil conservation program had used 2,685,000 tons in 1936, those participating used 3,620,000 tons. In 1942 the farms not participating used an estimated 2,000,000 tons and those participating 18,971,000 tons. Both figures are conservative because much limestone is used of which no record is kept.

In 1943, the farmers placed orders for 11,766,488 tons, but were able to get deliveries on only 9,769,295 tons. The total demand for 1944 is esti-

mated at over 15,000,000 tons, which is less than half the 35,000,000 tons, which the A.A.A. estimates is the minimum annual requirement. The bulk of limestone requirements are in the corn-belt, grain states of the North Central section, and in the dairying sections of nearly all the states.

Mr. Aitken said the A.A.A. had two basic responsibilities; (1) to influence farmers in adjusting crop acreages to the extent necessary to meet the record goals that have been set for certain crops; (2) to influence farmers to adopt soil-building measures which will contribute most to increased production immediately, as well as help prevent erosion of our soil resources.

The principal point of his address was the very earnest desire of A.A.A. to aid producers in every way possible to meet the production goal of some 15,000,000 tons or more in 1944.

Discussion

The discussion, begun by Mrs. **PAUL NAUMAN**, who handles the agricultural limestone sales of the Dubuque Stone Products Co., Dubuque, Ia., stated very forcefully the problem of many Mid-West producers—the draft is taking their truck drivers, equipment is wearing out. Many

of these producers depend largely on private truckers for moving their product and these truckers are being drafted and their trucks sold into other industries. A constructive suggestion was made by **EARL L. DINGLE**, Harry T. Campbell Sons, Towson, Md., who has worked out a scheme to get farmers to organize 25 to 30 trucks to handle shipments on a co-operative basis.

W.F.A. Wants to Help

Dr. H. P. GROGGINS, chief, Chemicals and Fertilizer Branch, Office of Materials and Facilities, War Food Administration, was the next speaker. His subject was: "Efforts Currently Being Made by the W.F.A. to Expedite Production of Agricultural Limestone."

Dr. Groggins said the success of coöperative efforts depends on figures as to accomplishments, and it is impossible to get figures on current production. He was sure production of agricultural limestone was in excess of A.A.A. estimates. What is wanted are monthly reports of production. The W.F.A. can then take action to spur production and farmer acceptance.

The production of milk and dairy products alone is a measure of the amount of lime being consumed annually. It is no longer considered a by-product; it is now classified as

(Continued on page 110)

"PENNSYLVANIA" STEELBUILT



REVERSIBLE HAMMERMILL

—one of a rapidly increasing number of Cement, Lime, Gypsum and Chemical Plant installations where progressive Operators were quick to appreciate the advantages of REVERSIBLE operation—which provides Major Reduction by Smashing Impact—Automatic Hammer Turning and Reshaping—Reversible Cage Bars—Cage Adjustment for Wear and Uniformity—all factors which sharply cut upkeep cost—while making a fine product for efficient grinding. Sizes for all requirements.

PUT YOUR REDUCTION PROBLEM UP TO US

Liberty Trust Bldg.

PENNSYLVANIA
CRUSHING COMPANY

Philadelphia, U.S.A.

The Screen to Meet Your Conditions



No restrictions are applied to sizes or designs of openings in Hendrick Perforated Plate. It is made to your specifications. Name the shape and size of opening that best meets your screening requirements, and we'll provide it—round, square, hexagonal, slotted or squarround. We can also punch to your specifications in practically any thickness of plate, flat or rolled to any curvature, corrugated or double-corrugated, including Hendrick High Carbon Heat Treated Steel.

HENDRICK MANUFACTURING CO.

47 Dundaff St., Carbondale, Pa.

SALES OFFICES IN PRINCIPAL CITIES
PLEASE CONSULT TELEPHONE DIRECTORY

Makers of Elevator Buckets of all types. Mito Open Steel Flooring. Mito Shot Site Treads and Mito Armorgrids. Light and Heavy Steel Plate Construction.

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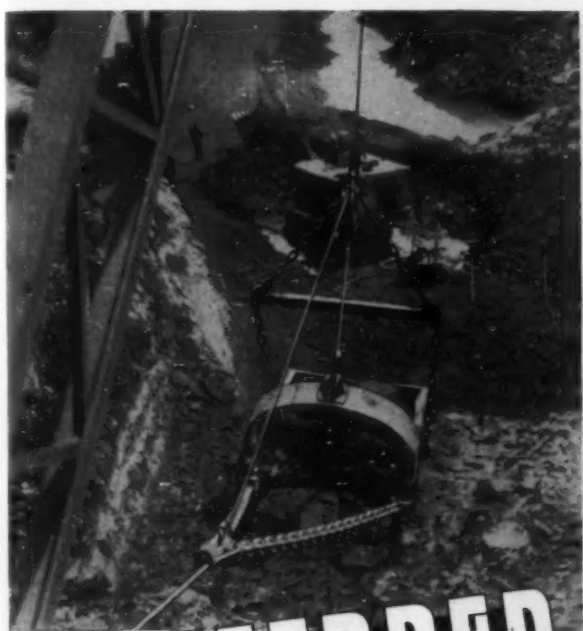
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PRODUCTS



PREFERRED

BY
COAL STRIPPERS

Why? Because Page **AUTOMATIC**
Dragline Buckets dig—through
soapstone, shale and blasted rock.
They **DIG**—and yet they clean off
the coal without tearing it up, the
AUTOMATIC Digging Action—
plus—Page **CONTROL**.

Write for details without obligation

Page
Automatic
DRAGLINE BUCKETS
PAGE
ENGINEERING COMPANY
c/o Chicago Post Office, Chicago, Ill.

Available for Postwar Operations

Continue your search operations on shore
and inland by making it depends on a large
extent on the way you meet this problem.
Eagle Iron Works and Co. and its divisions
the machinery for any size of job. It's a
solid like we've been here for a long time.
Write for these big machines and their
points of sale. Eagle Iron Works, Des Moines, Iowa.



"Swintek"
Screen Nozzle Ladders

Sand and Gravel deposits, free
from oversize, now at your disposal
for profitable postwar development.
Only small investment necessary—
will pay big returns. Write or wire
Eagle Iron Works, Des Moines,
Iowa.

Yes, it's true you can in effect
have clean, easily worked deposits
always at your disposal when you
use a
**SWINTEK Suction Screen Nozzle
Ladder.**

SWINTEK ends costly delays—pre-
vents oversized rock and debris
from clogging suction pipe.

SWINTEK combines screening and agitating operations and guar-
antees 100% capacity suction. Eliminates slug pumping.

SWINTEK widens the scope of dredging operations. It reaches
deeper to the better and harder packed deposits—makes them
easier and more profitable to work.

SWINTEK is built to withstand the digging load demands of
operators in the field.

Many far sighted operators are already installing **SWINTEK** Screen
Nozzle Ladders. Write today for the new **SWINTEK** catalog
describing fully its mechanics, operation, and profit possibilities.

Paddle Type Log Washers Sand Tanks & Dehydrators
Screw Washers & Classifiers

Eagle

IRON WORKS
DES MOINES, IOWA

[SC]² PRECISION CONCRETE CONTROL

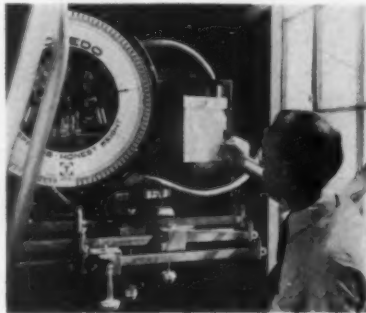
**Definitely improves concrete quality
and reduces its cost.**

**Now used in many progressive ready-
mixed plants.**

(SC)² Control definitely improves concrete quality and reduces its cost, all without expensive investment in new equipment. It saves the cement that has to be added to provide for expected variation in the W/C Ratio, most of which is unavoidable under ordinary batching methods. Guarantees delivery of the correct quantities of all ingredients, including cement, by making a graphic record of all weighing operations. Usual batching tolerances: water $\frac{1}{2}$ gallon per cubic yard; other ingredients $\frac{1}{4}\%$ of dry weight; yield $\frac{1}{4}\%$.



The [SC]² Moisture Meter. The only unit capable of determining moisture content in less than 1 minute.



The [SC]² Compensator which compensates for the moisture content in every ingredient and graphically records its every operation.

(SC)² Precision Concrete Control definitely improves concrete quality and definitely reduces cost. Write for our booklet "Profits in Concrete" and let us show what (SC)² can do in your plant.

Scientific Concrete Service Corporation
McLachlen Building, Washington, D. C.

Stronger Concrete Ships

EXPERIMENTS have been conducted by Northwestern University under the direction of Prof. George A. Maney, chairman of the civil engineering department of the Technological Institute, with a new technique which is expected to make possible the construction of reinforced concrete ocean-going ships and airplane hangars at less than a third of present costs. The most important principle in the new technique is the pre-fabrication of large units of the reinforced concrete structures. In building ships by the new technique, a "tin ship" would be constructed first by covering the reinforced concrete ribs of the ship with a steel "skin" $\frac{1}{16}$ -in. thick. These "tin" boats would then be launched and, while in the water, a layer of concrete would be poured over them, both inside and outside the hull, to encase the steel "skin" in concrete $2\frac{1}{2}$ in. thick. The concrete barge would be turned by a derrick to facilitate pouring the concrete, thus eliminating need for wooden forms.

Louisiana Orders Agstone

ORDERS for 69 carloads of limestone have been placed with the A.A.A. since the 1944 production practice program was announced in East Baton Rouge parish, according to C. R. Kleinpeter, parish committee chairman.

**When we
leave the
WARPATH-**



Get off to a Good Start with LIMA. When Victory is ours and we leave the warpath you will be needing new shovels, cranes and draglines for the big jobs that are now being held in abeyance. When that time comes LIMA will be ready to give your excavator and crane requirements undivided attention.

Faster, safer and more efficient LIMA shovels, cranes and draglines will be available through the use of new material, new methods of manufacture and experiences gained from war time service. The many new advantages to be offered by LIMA will help you make more profit through greater output on the big jobs coming up.

LIMA LOCOMOTIVE WORKS, INCORPORATED
Shovel and Crane Division LIMA, OHIO

15 Billion for Roads

THE AMERICAN ROAD BUILDERS ASSOCIATION held a three-day convention at the Edgewater Beach Hotel, Chicago, February 1, 2, and 3. Chas. M. Upham, engineer-director of the association, in his opening address urged the nation to prepare blueprints for a post-war road construction program to cost 3 billion dollars annually for five years. Mr. Upham stated that starting early in the 1930s the nation did not build roads as fast as the existing roads were wearing out. As the nation went into its defense program and later into the war, road construction fell off. The 1944 program is largely for military access highways. To assure the prosperity necessary to put the large number of soldiers, sailors, and war plant employees to work after the war, he said that every encouragement should be given construction, including road building. By judicious planning, which would aid both private and public construction, the nation should have a yearly construction program of approximately 10 billion dollars, with as much as 5 billions for new homes.

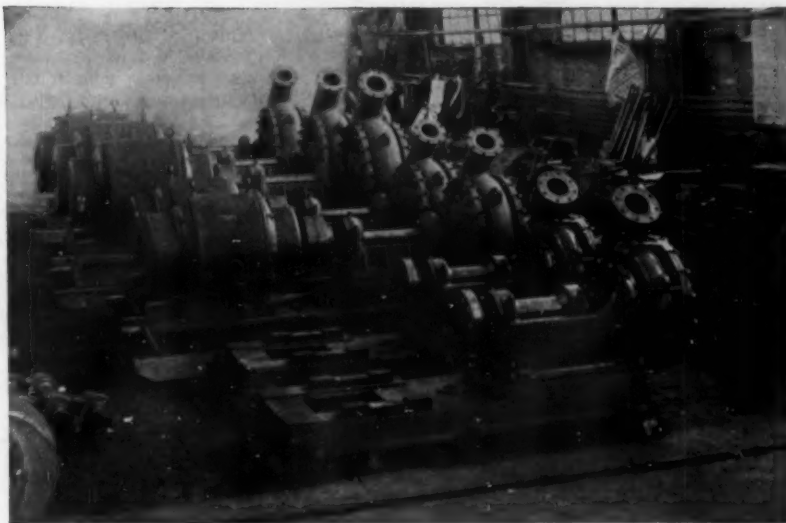
Congressman Robinson of Utah, chairman of the House road committee, said that bills which are to come up for public hearing on February 29, provide for highway construction of approximately one billion a year for each of three years after the war. This amount is to be increased by a 25 percent contribution from each of the States.

Oppose Cement Zoning

CEMENT MANUFACTURERS have severely criticized the W.P.B. Schedule 1 of General Haulage Conservation Order and are not satisfied with the recent revisions in the cement shipping zones which were "designed to permit freer flow of this material in territories now deficient in supply and to adjust discrepancies." With the industry now operating at about 35 percent of capacity, and with large stocks accumulated at many mills, it was pointed out there was no basis for the W.P.B. statement that the revisions would relieve any "deficiencies in supply." Estimates of the W.P.B. for 1944 show that the cement industry will operate at 50 percent or less, with an estimated need for only 60,000,000 bbl. of cement for domestic use and about 6,000,000 to 10,000,000 bbl. for export. It has been held that the conservation order is discriminatory since cement is the only commodity hauled in box cars to be affected by a zoning order.

Adds Block Machine

V. PATURZO BROS. & SON, concrete products manufacturers of Baltimore, Md., has installed another Besser Vibrapac. Other new equipment includes two lift trucks.



READY TO SHOOT

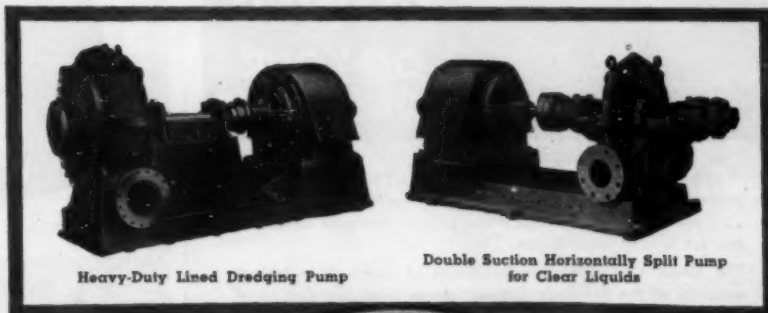
FOR GREATER PRODUCTION



This battery of MORRIS Slurry Pumps is part of an order for more than 150 units, ranging in size from 1 1/2 in. to 10 in., to be used in producing aluminum.

The requirements for these pumps are severe, for the design must provide constant expulsion of entrained air, the construction must withstand the chemical and physical action of alumina slurry, and the service involves foaming slurry which is difficult to handle.

However, MORRIS Pumps are accustomed to meeting difficult requirements. For 80 years, MORRIS has specialized on the "hard-to-handle" services . . . slurry, sludges, sand and gravel, sewage, paper pulp, chemicals, etc. This experience is at your service . . . to help solve your pumping problems. The MORRIS engineers are prepared to offer their authoritative advice without obligation, and invite your inquiry.



Heavy-Duty Lined Dredging Pump

Double Suction Horizontally Split Pump for Clear Liquids

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MACHINE WORKS
Baldwinsville, N. Y.



Export Office:
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CENTRIFUGAL PUMPS

Agricultural Limestone

(Continued from page 106)

a primary war need, said Dr. Groggins. Here, he said, was an assured market of 20 to 30 million tons. Why is it we cannot have adequate production to meet this demand? There is little or no sales resistance. There is an established market; there must be a misunderstanding somewhere, he said.

Dr. Groggins is convinced that there are a large number of idle quarries, particularly in the North Central area; a way must be found to get production. "You can't depend on 4-F facilities to get 1-A production" was the way he phrased it. However, he did not believe small deposit development was the answer to needed production; the time for bringing in small enterprises is not propitious. They require more repair parts and more labor per unit of production. He looked to commercial producers to fill the gap. They must find some way to utilize idle plants. He was sympathetic to more production even at increased costs and increased prices.

He advised producers to arrange production schedules through negotiation with the A.A.A.; to let it know how much can be produced and what the handicaps are. He said to do this work on a quarterly basis if that is desirable. This will be a real contribution to the war food program.

Dr. Groggins said copies of Marvin Jones' (head of W.F.A.) letter on the essentiality of men in the agricultural limestone industry would be supplied to producers for use on local draft boards. The W.F.A. is also doing all it can to keep truckers and trucks on the job, and it hopes to report progress soon on deferments from the draft.

Price Determinations

HENRY A. HUSCHKE, Fertilizers and Insecticides Branch, Office of Price Administration, spoke briefly on the subject of O.P.A. price adjustment procedures. First of all the Maximum Price Regulations on agricultural liming materials had to be revised to permit higher prices to A.A.A., but producers were compelled to report to O.P.A. that profit margins remained the same, and that the price increases were to take care of cost increases only. This resulted in the producers obtaining better prices from A.A.A. than from their regular customers. A new ruling on M.P.R. 386 took care of this and has taken care of all cases of price increases since then.

Mr. Huschke said there were three ways of pricing agricultural liming materials: (1) The March or April 1942 price; (2) under Amendment 9 of M.P.R. 386, referred to above, which extended the same A.A.A. price to all customers, based on the same margin of profit, but allowing for increased cost of production; (3) add

to the 1941 price the difference in costs as between 1941 and 1942. However, not more than 15 percent of the 1941 price can be added. He said that the O.P.A. did not have to approve these price changes if they were correctly arrived at under the rules. The O.P.A. merely sent a postcard receipt, which was enough. If there was anything wrong the O.P.A. would notify the producer by letter.

The procedure in the latter case, which is the latest ruling, May 15, 1943, is as follows: The producer computes the cost of producing a ton of lime, or whatever material, for the year 1941. He does the same thing for the six months ending April 30, 1943. He then gets two figures. One is what we call his present cost of production, the other is 1941 cost of production. He subtracts the 1941 cost from the present cost and gets a difference, say, of 20 cents per ton. He is permitted to add that to his 1941 selling price. If in 1941 his material sold for not more than \$2.00 per ton, he may add up to 30c. If his materials in 1941 sold for over \$2.00 a ton, he may add, if he can justify it, up to 15 percent of his 1941 f.o.b. bulk plant price. Thus, on a \$5.00 material, that would be as much as 75 cents a ton.

Discussion

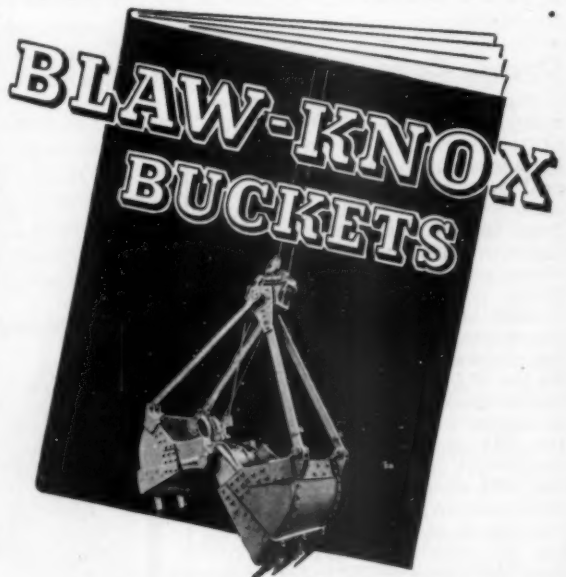
The problem of Midwest producers was brought up. Suppose you have been selling from stockpiles of sur-

(Continued on page 114)



If you are interested in engines . . . either "on the board" for post-war equipment, or "on the job" for immediate applications . . . you can't go far wrong if you include Wisconsin air-cooled engines in your specifications.

The Model VE-4, dimensionally illustrated above, is a typical example of the extremely compact power packages that carry the Wisconsin name plate. This 4-cylinder engine delivers 22 hp. at 2600 rpm. Other Wisconsin sizes run from 1 hp. to 31 hp. Check for Size and Power on your equipment.

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- No. 1696—Blaw-Knox Buckets for Single Drum Hoists for use on Railroads, Mills, Foundries, Etc.
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- No. 1865—Blaw-Knox 4 Rope Buckets for Coal, Ore and Cleanup.

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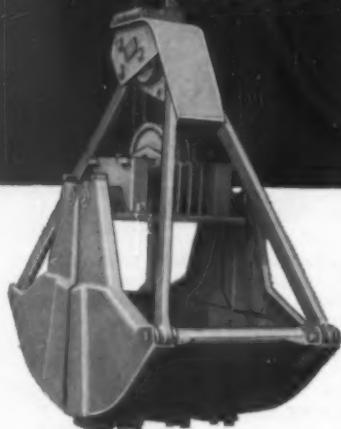
1. Lubricate bearings.
2. Check alignment of drive.
3. See that feed is evenly distributed.
4. Keep screen frame well painted.
5. Keep screen cloth clean when not in use.
6. Maintain tension of screen cloth.
7. Check clearances between moving and stationary parts.
8. Follow instructions of manufacturer.



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New JOHNSON all-welded BUCKETS



New and exclusive Johnson features give this new streamlined bucket efficiency-promoting and life-prolonging advantages in all centers of action.

Needle Bearings Sealed Against Dirt

All-Welded Construction Reduces Digging Resistance

Its all-welded construction eliminates power-wasting bolts and rivets... provides greater stability through proper weight distribution.

A renewable lip edge bar, of durable manganese steel, gives greater digging efficiency and many times the life of the ordinary steel lip construction.

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Guide sheaves replace conventional cross-rollers... greatly reducing cable wear. Needle bearings (protected against dirt by special synthetic rubber seals) are used on all closing sheaves.

General Purpose Type (1/2 to 2 yard capacity) in stock for immediate delivery to U. S. and Canadian contractors with required Government authorization. The line also includes Rehandling Buckets 1/2 to 2 1/2 yards, Heavy Digging 1/2 to 1 1/2 yards.

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OBITUARIES

GEORGE J. OLSEN, superintendent of the California Portland Cement Co., Colton, Calif., died recently at the age of 54. Mr. Olsen had been with



George J. Olsen

the company for 30 years. In 1940, due to poor health, he retired as superintendent and was appointed to the position of industrial adviser. Before joining the California company, Mr. Olsen had been employed at the plant of the Marquette Cement Mfg. Co., LaSalle, Ill., and the Lehigh Portland Cement Co., Mason City, Iowa.

RICHARD JENNINGS, field engineer for Oliver United Filters, Inc., New York, N. Y., died recently while completing some test work on filters in a paper mill.

P. A. YAGER, president of the River Sand and Gravel Co., Inc., Owensboro, Ky., passed away recently. Mr. Yager was widely known in the sand and gravel industry and was active

in the affairs of the National Sand and Gravel Association.

WALTER W. DUFF, president and general manager of the New Castle Lime and Stone Co., New Castle, Penn., died January 21 in Fort Lauderdale, Fla. He was 55 years of age. Born in Hillsville, Penn., Mr. Duff graduated from the New Castle high school and attended Bucknell college, graduating from the School of Engineering there. After leaving college, he was with the engineering corps of the Pennsylvania State Highway Department for two years and then became general manager of the Lake Erie Limestone Co. and the Union Limestone Co. He also assisted in the organization of the New Castle Lime and Stone Co. Mr. Duff was a member of the Pennsylvania Stone Producers' Association and served as its president. He also aided in organizing and served as president of the All Weather Highway Association, an organization devoted to good roads in western Pennsylvania and eastern Ohio.

FRED BARTLESON, former manager of the Western Stone Quarry, Joliet, Ill., died recently at the age of 79.

CHARLES LINDGREN of the Haydite Sales Co., San Francisco, Calif., died recently. Mr. Lindgren had been prominent in the distribution of lightweight aggregate and in the sale of Haydite block in the San Francisco Bay region for a number of years. He was associated with the Haydite Concrete Products Co., McNear Point, San Rafael, Calif.

ELMER HESPELL, Sr., who with his sons operated the Montgomery Stone Co., Montgomeryville, Penn., died recently, leaving his share of the business to his two sons, Harry Hespell and Elmer Hespell, Jr.

CAPT. ROBERT WITHERS MASSIE, retired president and founder of the Lone Jack Limestone Co., Lynchburg, Va., passed away January 1 after a short illness. He is survived by his wife, two sons and a daughter.

THE ROSS FEEDER

Completely controls the flow of any size material from Storage Bins, Hoppers or Open-Dump Chutes to Crushers, Conveyors, Screens, etc.

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THOMAS F. BURKE, formerly New York district manager of the Lehigh Portland Cement Co., died January 21 after a long illness. He was 56 years old and had been with the company for 31 years when he retired last July.

LEONARD CRAWFORD RHODES, retired owner and operator of mica mines in Franklin, N. C., died recently at the age of 71.

WILLIAM H. MURRAY, SR., well known retired concrete block manufacturer, died recently at his home in Cohoes, N. Y., after a brief illness. He was 78 years of age.

FRED WILLIAM BARHOFF, retired electrical engineer and manufacturer, died January 5. He was 70 years of age. Mr. Barhoff was actively interested in chemistry and geology, and engaged in oil exploration and mining as well as industry. In 1920 he established the Allyndale Lime Co., Hartford and Canaan, Conn., owning this business until 1930. He was president and founder of the Bunsen Oil Burner Corp. and the Bunsen-Davy Corp., and president of the Engineering Products Corp.

LEWIS MERIWETHER WALKER, SR., president of the Friend Sand and Gravel Co., Petersburg, Va., died in

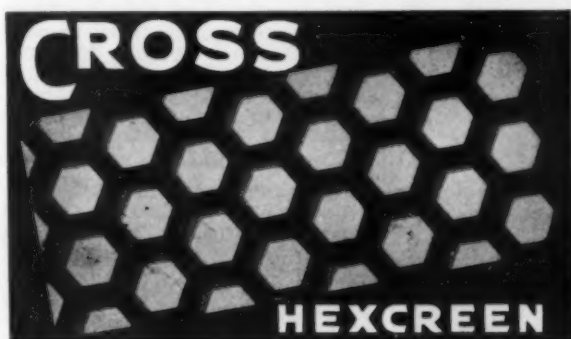
Richmond, Va., January 17, at the age of 61.

JOHN L. WALSH, owner of the Walsh Sand and Gravel Works, Northport, L. I., passed away recently at the age of 46.

WILLIAM HARLOW WILLIS, retired concrete block manufacturer, passed away recently at his home in Bridgeport, Neb. He was 70 years old.

Assistant Gen. Supt.

S. W. STOCKDALE, formerly associated with Basic Magnesium, is now assistant general superintendent of the International Smelting and Refining Co., East Chicago, Ind.



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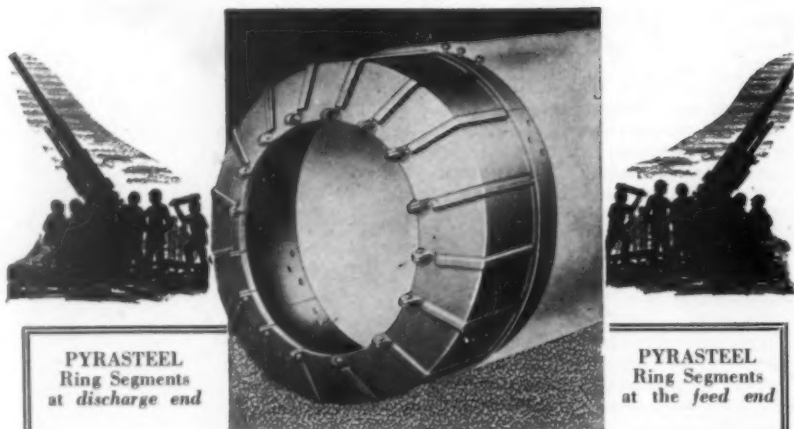
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at discharge end

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For High Temperature

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Makers of Alloy Steel for 30 Years

EVANSTEEL
For Shocking

Agricultural Limestone

(Continued on page 110)

plus screenings, these stockpiles are now exhausted. The price for these screenings as a byproduct was very low. There is no longer any more commercial business to speak of and therefore no byproduct screenings are being accumulated. How can the producer arrive at a price when he must convert practically his entire plant to production of agricultural limestone as the main product? This is a fundamental problem with many large Midwest producers. They have had no experience with costs under such conditions of operation.

Mr. Huschke thought that this could be solved if the producer would take a gamble on estimated costs, that he could justify. PAUL NAUMAN, Dubuque Stone Products Co., Dubuque, Ia., said his company just could not bid unless this problem was solved.

Railway Roadbed Construction

THE MORNING SESSION of the convention of the National Crushed Stone Association on February 1 was presided over by G. A. AUSTIN, president, Consolidated Quarries Corp., Decatur, Ga. The first speaker was G. M. MAGEE, research engineer, American Railway Engineering Association, whose subject was "Developments in Railroad Roadbed Construction," with particular reference to changes probable in the post-war period.

Ballasting, Mr. Magee said, is a continuous process and availability of suitable material is the important consideration. The important questions were the tendency of the stone to pulverize and the extent to which it fouls. He said that analysis of the fouling material showed it to be 41 percent limestone dust, where limestone ballast was used. Trap rock, he said, made the best ballast. On the Illinois Central R. R. in order to prevent dusting of limestone ballast, experiments have been made, in cooperation with the Asphalt Institute and the Texas Corporation, with asphalt-coated limestone ballast. The asphalt was sprayed on the ballast and subsequently covered over with screenings to prevent fouling. Later Mr. Magee showed moving pictures of this work in progress.

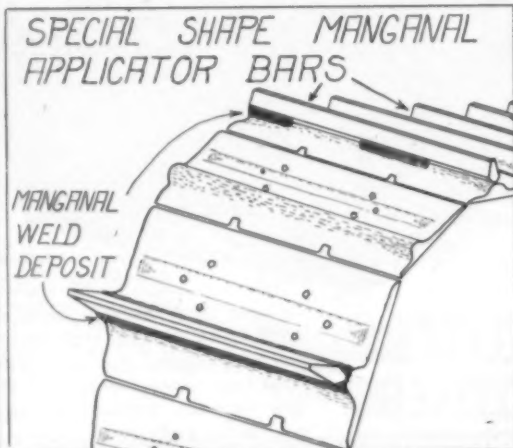
Railroad roadbeds have also received much more attention, particularly adequate drainage of soft parts and "squeezes." In some places wood piles are driven on each side of the track, at the tie ends, to give more stability to the track structure. In other places steel pipes were driven into the roadbed at an angle and cement grout forced into the subgrade. These types of roadbed improvement, he said had met the test and continued progress would be made.

EDITOR'S NOTE: The paper on Combating Alleged Damage from Blasting will appear in the next issue.

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MADE IN FIVE SIZES EASILY WELDED TO ANY SHAPE OR SIZE GROUSER. PROVIDES A RE-TREAD FOR ALL TRACK LAYING TYPES OF EQUIPMENT.

Attach with Manganal Bars or Special Tite Kote welding electrodes. Applicator bars are manganese nickel steel, the toughest metal known. Work hardens under impact and abrasion. New parts are difficult to obtain. Saves approximately 80% of the metal of a new part, as well as time and money.

150 Distributors Are Ready to Serve You

Sole Producers

STULZ-SICKLES COMPANY

134-142 Lafayette St., Newark, N. J.

Try Seaco Hard Surfacing Over Manganal Weld Deposits

Letters to the Editor

Ballasting Our Highways

Sir: I wish to refer to your editorial on "Ballasting Our Highways." May I say that the proof of the correctness of ballast from shoulder to shoulder and for cut-toe drainage for almost all classes of soils can be demonstrated by the result of the wet soil conditions from Oakland, California, to Chicago, Illinois. Your comments on the subject should be recorded in large letters after the methods of Burma-shave.

Two years ago my wife and I drove overland to the A.S.T.M. meeting in Chicago. We went by way of the roads on which I had worked as an engineer and also as a vendor of crushed rock in Iowa. Before we had crossed the California line my previously uninformed wife called my attention to the subgrade soil failures in cuts and at the 00 points as we moved from cut to fill. Shortly thereafter she presented me with a cut from a highway construction magazine stating in large black type, "a patch won't cure a subgrade failure." (The clipping is now on the wall beside me.) I have my wife's support in my claim that none of the western states have lacked failures of this kind.

However, much effort has been made by laboratory trained soil technicians to overcome the conservatism of the construction and highway design engineer. Together with others I have gained quite a reputation for being too theoretical about removing clays and substituting ballast blankets having the character of coarse aggregates. But when designs and specifications are changed to allow "ballasting" the results speak for the principle. Heavy loads may be carried upon very light surfaces if the ballast is compacted and tacked lightly with cement (portland or asphaltic.)

Just at the conclusion of World War I, returning soldiers, were easily sold on the use of big macadam rock because of their observations and experience with French roads. Some of these men returned to jobs to which the River Products Company at Iowa City, Iowa, shipped crushed limestone. The materials were premium and processed. The clay tolerance was under 3 percent. The results were good. We, in Oakland, are writing our specifications for identification and control of blanket materials. The idea of isolating pavement surfaces from subgrade has been incorporated in Pacific coast specifications for some years but full effectiveness of many advantages of a premium processed material have never been sufficiently understood to focus attention upon the economy of the better aggregates. This will come in

time but it will be hastened by such publicity as you have given to the ballast idea.

We would like to suggest that a L.S. limit of 3 percent be placed upon those materials which when tested show more than 15 percent passing the 28-mesh sieve. This 3 percent shall be the limit of shrinkage when total quantity passing the 8-mesh is greater than the voids in the portion above the 8-mesh. These tests are made to identify materials which fail to meet the bearing value test because the fines have the mechanical properties of colloidal materials and occur in sufficient quantity to dominate the stability of a mixture with high wet bearing coarse fractions. They may occur in quantities slightly less than the volume of the voids in the materials larger than 8-mesh but, due to segregation or swelling after becoming wet, the passing 28-mesh fraction may become a lubricant.

The New England yankees may be rock minded because of a rock bound land and although they have stuck to the use of rock and should be given credit for using it, it seems to me that the rock industry will gain much by encouraging stern testing and inspection of crushed rock and coarse gravel in the silt and clay communities. Remember that "A SURFACE PATCH WILL NOT CURE A SUBGRADE FAILURE."

STANLEY M. HANDS,
Testing Engineer,
Street Department,
Oakland, Calif.

Fire in Stone Plant

AMERICAN LIMESTONE QUARRY CORP., Wingdale, N. Y., recently suffered a \$15,000 fire loss of equipment and plant structures. The screening plant and ten bins were destroyed, but a smaller pulverizing plant was not touched, according to Nicholas Lucchese, managing partner in the business.

Close Quarry for Repairs

COLORADO FUEL & IRON CO. has closed its Monarch quarry near Garfield, Colo., which will not be reopened until May, but 40 employees will be retained to do repair work. This quarry supplies flux stone for the steel plant at Pueblo which has a large supply of stone on hand for present operations.

Products Plant Fire

OLYMPIA CONCRETE PRODUCTS CO., Olympia, Wash., reported a fire destroyed two large trucks and considerable machinery in the plant.



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Acid Open Hearth
Steel Wire

Round Strand
Flattened Strand
Preformed
Steel Clad
Non-Rotating

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Alkali Etching Tests on Concrete Aggregates

REACTION between certain types of aggregate and the alkalis in some cements has been suggested as a cause of a type of expansive disintegration of concrete. As a part of a general study at the National Bureau of Standards, of the properties of concrete aggregate materials, alkali etching tests were made by Willard H. Parsons and Herbert Insley on various aggregate constituents that have been blamed as reactive. Polished specimens of rocks and minerals were immersed in various alkali hydroxide and sulfate solutions for periods of time from 20 minutes to nine months and then examined microscopically for evidence of reaction or etch of the polished surface. Opal in various forms was etched very readily and volcanic glass, chalcedony, some feldspars, calcite, and dolomite were etched slightly under certain conditions.

A simple test for detecting potential reactivity of a concrete aggregate with the alkalis in cement is to immerse the polished specimens in a 10 percent NaOH solution at 50 deg. C for 18 to 24 hours. This makes possible the detection of potentially reactive aggregates in a few hours, whereas several months are required by present methods. The test has been applied to several commercial concrete aggregates that proved bad in service, and the polished surfaces of most of them were considerably etched.

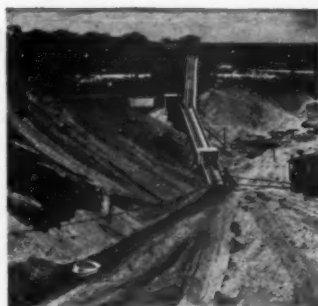
A paper in the Journal of the American Concrete Institute describes the etching procedure used to identify suspected minerals and rocks and the suggested test for aggregate reactivity.

Crusher Companies Restrained

THE FEDERAL TRADE COMMISSION has issued an order prohibiting seven manufacturers and 300 distributors of rock crushing and other heavy construction machinery from "maintaining or continuing" what has been called a conspiracy to suppress competition. A. W. Daniels, named as secretary of the Rock Crusher Manufacturers' Association, asserted recently in answer to the order that the organization ceased to exist several years ago. This group was a carryover from NRA days and was formed to set up standards and improve practices.

Asphalt Conference

H. KRAUSE of Columbia Quarry Co., St. Louis, Mo., with plants in Illinois, will represent the aggregate producers at the State Asphalt Conference to be held in Springfield, Ill., on February 23 and 24. This conference has been sponsored by the Illinois Division of Highways and the Asphalt Institute.



REDUCING COST OF MOVING MATERIAL

IT costs but a few cents per yard to dig, haul and place materials with a SAUERMAN Power Drag Scraper or Slackline Cableway. The low cost and large capacity of these machines is proved daily on hundreds of digging and stockpiling jobs.

SAUERMAN Machines are designed in suitable sizes and types to cover the requirements of every dig-and-haul job and each machine, whether large or small, offers the greatest possible economy of power and labor.

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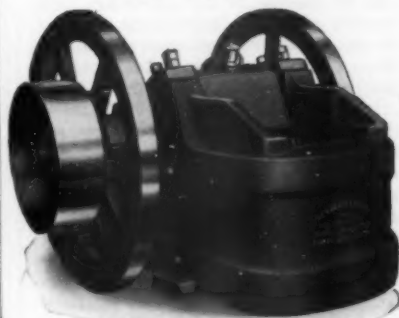
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Complete plants designed and equipped, including Screens, Elevators and Conveyors. Machinery for Mines and Rock Quarries, Sand and Gravel Plants.

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Receives Award of Excellence

WILLIAM W. ADAMS, supervising statistician in the Bureau of Mines' Economics and Statistics Service, was granted an Award of Excellence on December 4, 1943, by Secretary of the Interior Harold L. Ickes for his part in designing a new and simplified accident report to serve the coal-mining industry and the federal and state governments. The new system not only simplifies the method of reporting accidents, but likewise is saving thousands of man hours for mining companies, while at the same time making accident reports uniform. It now is being used in states producing 85 percent of the nation's coal.

Editor Resigns

MERLE THORPE has resigned as editor and publisher of *Nation's Business* after devoting more than 25 years in guiding the editorial and business administration policies of the publication. He will continue his connection with the magazine in a consulting capacity. In accepting Mr. Thorpe's resignation the board of directors of the Chamber of Commerce of the United States appointed him a member of the magazine's Governing Board. He will be succeeded as editor by Lawrence F. Hurley, who for several years has been assistant editor.

Becomes Secretary

HAL H. HALE has been appointed executive secretary of the American Association of State Highway Officials at Washington, D. C. He was formerly office engineer in the regional headquarters of the Portland Cement Association at Atlanta, Ga., and at the time of his appointment was Washington representative for the American Society of Civil Engineers.

Heads Metals and Minerals Office

ARTHUR R. BUNKER has been appointed vice-chairman of the newly created Office for Metals and Minerals, which completes the reorganization of the former Office of Operations vice-chairman, and brings all metals and minerals under the control of a single vice-chairman. In this office Mr. Bunker will assume the direction of the steel, copper, aluminum and magnesium divisions, the minerals bureau and the minerals resources coordinating division and its related committees.

Asbestos Mine Promotion

K. BEHRE, formerly sales manager of The Ruberoid Co., Vermont Asbestos Mines division, has been appointed secretary of the company. He came with Ruberoid when the Vermont Asbestos Corporation was taken over in 1936.

BROWNHOIST BUCKETS



The greedy jaws of Brownhoist clamshell buckets speed up material handling in dirt, clay, coal, gravel and ore. Their deep, clean bites practically eliminate hand shoveling. Extra sturdy. Large sheaves reduce rope wear to a minimum. AVAILABLE IN ROPE-REEVE, POWER-WHEEL AND LINK-TYPE. For facts and prices write to Industrial Brownhoist Corporation, Bay City, Michigan. Offices in New York City, Philadelphia, Pittsburgh, Cleveland and Chicago.

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NEW & USED EQUIPMENT

SPECIAL

ROTARY CONVERTER—1000 KW Westinghouse. Transformer and auxiliaries.
SLIP RING MOTOR—125 HP. 3760/230. 730 RPM with controls—late model, rblt.
TURBINE—100 HP. Westinghouse 2700 RPM gear reduction.
AIR COMPRESSOR—1. R. Duplex. 100 HP. motor and receiver.
STEEL GUY DERRICK—110' mast 90' boom—3 drum Clyde hoist, electric.

AGITATORS

23—For 12' x 12' tanks, and others.

DRYERS & COOLERS

1—3½ x 44 ft. and others.
1—7' x 56' Rotary Coal Dryer.

FEEDERS

2—BAILEY FEEDERS, Type No. 2, complete with steel hoppers. 8½ d.a. x 12 ft. cone bottom.

KILNS & COOLERS

Vulcan 7' x 120', like new. Also various others.

CRANES

1—LOCOMOTIVE, 4-wheel, 10 ton, 25' boom. Brown Hoisting Co.
1—OVERHEAD, 10 ton, 74' span, air operated.

DREDGES, TUGS & SCOWS

1—DREDGE, steam, steel hull, bucket type.
1—TUG, steam, steel hull.
3—SCOWS, steel.
1—MACHINE BOAT, steel, marl cutter.

GRINDING EQUIPMENT

1—CRUSHER, Kennedy No. 14 Gyratory.
1—PUG MILL, 15" diameter x 8½' with heaters.
1—TUBE MILL, 5½' x 30', F. L. Smidth Co.
1—TUBE MILL, 5½' x 22'.
2—RAYMOND MILLS, 4 rolls.

SCREENS

4—SINGLE DECK HUMMER SCREENS, 4'x5' complete with feeder and generators.
2—SINGLE DECK HUMMER SCREENS, 4'x5'.
1—TRIFLE DECK KENNEDY SCREEN.

BELT CONVEYORS

1—CONVEYOR, 120' x 24", ball-bearing, rollers and idlers, complete with belt, like new.

MISCELLANEOUS

1—STEEL STACK, 6½' dia., 145' high, ¼" thick.
1—WAGON DRILL, Gardner-Denver.

SYNCHRONOUS MOTORS

1—1900 HP, 25 cycle, 2380 V.
2—1250 HP, 25 cycle, 2300 V.

WANTED: DIESEL AND GENERATING EQUIPMENT

WEBBER EQUIPMENT CO.

New and Used Equipment

17 East 45th St., MU. 2-6511, New York 17, N. Y.

FINANCIAL NOTES

RECENT DIVIDENDS

	Amt.	Payable
Riverside Cement Co. 5% pfd. (np)	\$1.25	Feb. 1
Pacific Portland Cement Co. 6½% pfd. (p100) (arrear)	1.00	Jan. 29
Alpha Portland Cement Co.25	Mar. 25
National Gypsum Co. pfd. 1.12½	1.12½	Mar. 1
Schumacher Wall Board Corp.25	Feb. 15
Schumacher Wall Board Corp. pfd.50	Feb. 15
International Minerals & Chem. Corp. 4% pfd.	1.00	Mar. 30

MARBLEHEAD LIME Co., Chicago, Ill., has announced that outstanding 1st 7s, due January 1, 1944, have been extended to January 1, 1954, at 4½ percent interest.

INTERNATIONAL MINERALS & CHEMICAL CORP., Chicago, Ill., will build additional facilities at plants in Carlsbad, N. M., making total commitments of \$18,850,000 with the Defense Plant Corporation, R.F.C. subsidiary.

UNITED STATES GYPSUM Co., Chicago, has voluntarily dissolved the company's subsidiary, Sampson Plaster Board Co., a Delaware corporation.

CANADA CEMENT Co., LTD., Montreal, Canada, reports the following consolidated income account for the years ended November 30:

	1943	1942
Operating profit	\$4,108,404	\$6,146,683
Depreciation	1,750,000	1,825,000
Directors' fees, etc.	104,153	101,892
Balance	2,254,251	4,219,791
Inc. from invest.	71,405	41,519
Total income	2,325,656	4,261,310
Bond interest	442,284	442,284
Mortgage interest	19,300	21,300
Pension fund	100,000	100,000
Bond refund. exp.	110,000	110,000
Inc. and prof. tax.	705,000	2,175,000
Net income	949,072	1,412,727
Preference divs.	1,004,345	1,004,345
Surplus for year	dr 55,273	408,382
Prev. surplus	3,640,782	3,232,401
Surplus, 11-30	3,585,509	3,640,782
*Times int. earn.	4.58	8.72
*Earn., pref. share.	\$4.72	\$7.03
*Earn., com. sh.	d 0.59	0.18
No. of pref. shs.	200,869	200,869
No. of com. shs.	600,000	600,000

*Disregarding preferred arrear.
*Before income and profits taxes.
*Of which \$147,000 is refundable.

LONE STAR CEMENT CORPORATION, New York, N. Y., in a preliminary report for the year ended December 31, 1943, shows consolidated net profit of \$2,684,823, after federal income and excess profits taxes. This com-

pares with \$3,443,339 for the calendar year 1942. Consolidated earnings for the three months' period ended December 31, are as follows:

	1943	1942
Sales	\$6,612,333	\$8,459,089
Mfg., etc., costs	4,296,271	4,709,392
Selling exp., etc.	769,205	774,229
Deprec. and deplet.	395,264	493,892
Operating profit	1,151,593	2,481,576
Other income	125,606	79,717
Total income	1,277,199	2,561,293
Fed. taxes, etc.	806,529	1,632,056
*Misc. charges	cr 205,305	cr 232,850
Net profit	675,975	1,162,087
Earned per share	\$0.71	\$1.23

NEW HAVEN TRAP ROCK Co., New Haven, Conn., has presented the following consolidated balance sheet, as of November 30:

	1943	1942
Assets:		
Cash	\$43,862	\$21,058
Accts. receivable	110,818	201,824
Crushed stone	67,494	64,381
Supplies	35,370	43,775
Prepayments	16,029	9,705
Total current ..	\$273,573	\$340,742
Plant and prop.	3,223,091	3,194,256
Investments	22,500	22,500
Suspense	12,373	13,411
Total	\$3,531,536	\$3,570,909
Liabilities:		
Accts. payable	\$33,895	\$44,765

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Any size or style screen, in thickness of steel
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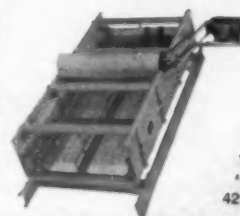
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RICHMOND, AUSTRALIA: 134 Victoria Street
JOHANNESBURG, S. AFRICA: 4 Village Road

DENVER EQUIPMENT COMPANY, 1400 17th St., Denver, Colorado

Taxes payable.....	4,093	3,974
Income taxes	2,203	12,935
Total current.....	\$40,191	\$61,674
Mtges. payable.....	4,000	4,500
Deprec. reserve.....	651,605	580,202
Depletion res.	28,757	26,299
Insur. reserve.....	43,253	39,382
Pfd. stock (\$100)...	1,664,000	1,664,000
Com. stock (\$50)...	1,040,500	1,040,500
Surplus	59,230	154,353

Total	\$3,531,536	\$3,570,909
Net curr. assets.....	\$233,382	\$279,068

CORONET PHOSPHATE CO., New York, N. Y., reports the following income account for the years ended December 31:

	1943	1942
Operating profit.....	\$269,603	\$298,079
Depreciation & depletion	76,538	67,390
Gen. & adm. exp.....	71,264	66,999
Retirement plan	19,346	21,732
Taxes	25,079	25,814
Net oper. income.....	77,377	116,144
Other income	2,297	1,728
Total income	79,673	117,871
Fed. income tax.....	31,290	46,455
Net income	48,383	71,416
Dividends	75,000	100,000
Deficit for year.....	26,617	28,584
Earn. surp., 1-1.....	70,991	97,223
Adjustments, net		cr 2,352
Earn. surp., 12-31.....	44,374	70,991
Earned per share.....	\$1.93	\$2.86
No. of shares	25,000	25,000

No provision considered necessary for excess profits taxes.

Sand-Lime Brick Production and Shipments

THREE active sand-lime block and brick plants reported for December and four for October, 1943, statistics for which were published in January, 1944. The fourth plant reported for January and the figures have been included in the December figures.

AVERAGE PRICE FOR DECEMBER

	Plant Price	Delivered Price
Detroit, Mich.		\$16.00
Saginaw, Mich.	\$15.00	
Grand Rapids, Mich.		15.00

STATISTICS FOR NOVEMBER AND DECEMBER

	*November	*December
Production	1,076,110	1,208,060†
Shipments (rail)...	660,000	35,000
Shipments (truck)...	245,000	998,060†
Stocks on hand....	373,000	608,000†
Unfilled orders.....	900,000	1,250,000†

*Four plants reporting; incomplete, one not reporting stocks on hand and two not reporting unfilled orders.

†Four plants reporting; incomplete, one not reporting stocks on hand and two not reporting unfilled orders.

‡Figures include report from one plant for January, 1944.

Add Mill to Rock Plant

VERONA ROCK PRODUCTS CO., Verona, Ont., Canada, is planning to install a new 100-ton mill to permit expansion of output of insoluble and soluble chicken grits as well as other products. According to an item in *The Financial Post*, Toronto, the design of the new plant provides for expansion of capacity to 200 tons daily at small additional cost if this should be desired in the future.

PULVERIZERS for the reduction of Cement Materials, Limestone, Agricultural Limestone, Fire Clay and All Dry, Refractory Materials.

Capacities: 1 to 60 tons per hour

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To Increase Capacities or Fineness of Present Grinding Plant—

To Reduce Power and Maintenance Costs—

To Insure an Absolutely Uniform Product—

Use the BRADLEY AIR SEPARATOR

MANGANESE STEEL CASTINGS

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CRUSHERS
ROLLS
SCREENS



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CRANES
CONVEYORS

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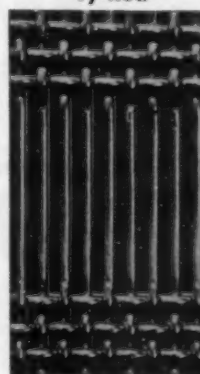
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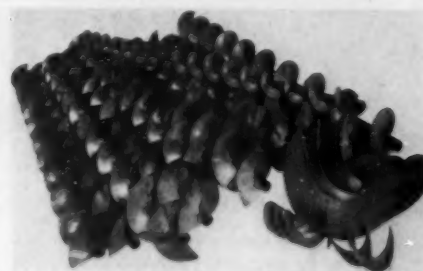
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Manufacturers' News

Mack Trucks, Inc., New York, N. Y., has announced the appointment of George J. Hubert as manager of the company's newly created Contract Termination Department. Mr. Hubert will work in close alliance with J. E. Savacool, vice-president and comptroller of Mack Trucks, Inc. and all policies of this new department will emanate from the comptroller's office.

H. K. Porter Co., Inc., Pittsburgh, Penn., has named Thomas MacLachlan general manager in charge of the new export office at 50 Church St. in New York, which will serve as an Eastern center for the company's entire line of locomotives, process equipment and pumps. Mr. Mac-

Lachlan was formerly New York manager of the Vulcan Iron Works, Wilkes Barre, Penn. R. G. Newell, representing the Quimby Pump Division, and Earl M. Bardo, representing the company's chemical process equipment in the New England and the New York district, will direct their activities from the new office.

Wickwire Spencer Steel Co., New York, N. Y., announces the appointment of Lt. Col. Cecil P. Young, U.S.A. Ret., as executive vice-president of the Wickwire Spencer Aviation Corp., a subsidiary. Lt. Col. Young will be located at Chicago where the company's Blue Island plant is situated.

The Timken Roller Bearing Co., Canton, Ohio, has promoted H. B. Lilley, formerly assistant chief inspection engineer of the Steel and Tube Division, to the position of sales development engineer.

Ameco Metal, Inc., Milwaukee, Wis., has announced the resignation of V. C. Mekeel, superintendent of foundries, to accept the management of product engineering and sales development for Syncro Machine Co., Rahway, N. J. Mr. Mekeel was formerly associated with the Bethlehem Steel Co., Taylor-Wharton Iron & Steel Co., Sivyer Steel Casting Co., and the Mekeel Engineering Co.

Builders Iron Foundry, Providence, R. I., and Omega Machine Co., Kansas City, Mo., announce a consolidation whereby the latter becomes a subsidiary of Builders Iron Foundry. L. E. Harper continues as president and director of Omega and the company will continue at its present address, 3409 East 18th St., Kansas City, Mo.

Jaeger Machine Co., Columbus, Ohio, has announced the appointment of R. McLean as sales manager.

GRUENDLER CRAFTSMANSHIP

Employed by U. S. A. in the WAR EFFORT

HAMMER MILL CRUSHING and GRINDING EQUIPMENT



A size built for Every Need

Gruendler Features:

MOVING TRACK

BREAKER PLATES

For Wet, Sticky Materials.

TRAMP METAL TRAPS

Full Protection to Crusher.



Developed by Engineers who have made a Life Study of the Hammer Mill Principle for Material Reduction keeping in step with new features to meet the demands for greater efficiency and speed.

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WON'T QUIT OR CAUSE TIME OUT
A Hayward Bucket keeps the job going ahead on scheduled time. It won't quit or cause time out.
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PLYMOUTH LOCOMOTIVE WORKS

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WILFLEY centrifugal SAND PUMPS



for Slurries, Sand Tailings
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Continuous operation without attention for long periods. Stuffing box, stuffing, gland water ALL eliminated. Close clearances maintained by easy slipper seal adjustment. Heavy

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DUCTS

Kensington Steel Co., Chicago, Ill., has been awarded the White Star for its Army-Navy "E" flag for continuing to maintain a high standard in the production of equipment for the war effort.

Koehring Co., Milwaukee, Wis., has been awarded the Army-Navy "E" pennant for excellence in the production of war equipment.



Left to right: Col. W. H. Hastings, Col. McDonald Weinert, Major A. R. Striegel, Capt. C. O. Wallace and G. E. Long, president, Koehring Co., receiving the award

The Timken Roller Bearing Co., Canton, Ohio, has announced the following changes in personnel: John E. Flick, superintendent of the Steel and Tube Division, has been made vice-president in charge of the division. E. S. Hoopes, Jr., assistant general superintendent, has been appointed general superintendent. A. M. Donze, factory manager at Canton, Ohio, for the past eight years, has been made vice-president in charge of production, and H. M. Richey, assistant factory manager, has been promoted to factory manager. Walter G. Hildorf, who recently became director of metallurgy, is the first to occupy that newly created office. He was formerly chief metallurgical engineer, a position now held by Ralph L. Wilson.

Iowa Manufacturing Co., Cedar Rapids, Iowa, reports an unusual story of patriotism. As a memorial to a fellow worker, Louis M. Parks, missing in action since January 28, 1943, more than 1000 employees of the company built on their own donated time a complete 25-cu. yd. rock crushing and screening plant and presented it to the Government. The army has promised to ship it immediately to some foreign theater of operations and to follow its record, reporting back to those who built it. The plant will bear a plate designating it as "Louis M. Parks—Spirit of Cedar Rapids."

Mack Trucks, Inc., New York, N. Y., has named Henry Rowold as vice-president of Mack-International Motor Truck Corp. Mr. Rowold has been with the company since 1919. He is also a committee member of the Central Truck Tire Rating Board of the O.P.A.

Westinghouse Electric & Manufacturing Co., East Pittsburgh, Penn., has appointed William J. Massey general lamp sales manager of the lamp division with headquarters at Bloomfield, N. J.

New Incorporations

Sheridan Gravel Co., 314 Fifteenth St., Moline, Ill., has been granted a charter to operate sand and gravel pits. Capital stock 1000 shares common with a par value of \$100. Incorporators are O. W. Ellis, H. B. Smith and L. E. Greim. Correspondent is Laverne S. Greim, Moline Consumers Co., Moline, Ill.

Staten Island Mica Insulation Corp., West Brighton, N. Y., has been incorporated to deal in mica, etc., with a capital stock of 100 shares, no par value. Jerome Otis Ellis, 56 Bay St., Staten Island, N. Y., is the agent.

Mt. Ivy Sand & Gravel Co., Inc., Mt. Ivy, N. Y., has been organized to deal in building products, etc., with a capital of \$20,000. Mann & Rooney, Pearl River, N. Y., is the agent.

Sell 50,000 Concrete Tubs

APPROXIMATELY 50,000 bath tubs were manufactured during 1943 for various War Housing Projects in various parts of the country. This estimate is based on returns from seven eastern manufacturers who made tubs using lightweight concrete as a substitute for enameled iron tubs which were prohibited.

Specifications called for smooth concrete, preferably with a durable painted finish. Much experimental work was done similar to the procedures outlined by Otto Buehner in the Journal of the American Concrete Institute for April, 1943 (also described in ROCK PRODUCTS), and most manufacturers used concrete molds as metal was difficult to get.

The use of lightweight concrete reduced shipping weight, and produced a concrete that more readily absorbed heat shocks than the heavier materials. Expanded slag and Haydite were extensively used to produce this concrete. Tubs were crated to minimize breakage due to careless handling, and little replacement was necessary. Several manufacturers designed and made a reversible tub to meet the architects standards, while others made a tub with a skirt which required right and left hand molds.

Little sales literature has been used as sales were made in most cases from sample tubs, and deliveries are sometimes twenty weeks behind schedule. Delays were caused by labor shortages and the difficulties in purchasing necessary equipment in spite of good priorities. Most sales were made through plumbing jobbers as it was thought that these outlets would be of value for specialties that might be produced for post-war markets.

The future of the bath tub business will be a debated subject. Some will feel that concrete tubs can compete under normal peacetime conditions, while others feel that the expansion of the metals industries in the war period, will reduce metal costs to the point where iron tubs will be lower in cost than ever before. It is rumored that some iron is about to be released in the near future for tub manufacture, and if true it will determine future competition. Whatever the future holds, the experiences the producers of lightweight concrete tubs have had, will probably be used to develop other products for peace time business.

Fire Destroys Sand Plant

SEYMOUR SAND & STONE Co., Seymour, Conn., reported that a fire almost completely destroyed its plant with a loss of \$30,000. Equipment also includes a number of trucks.

SPECIFY MACWHYTE PReformed



... the Correct Rope for your equipment

**made to meet
the needs of
ROCK PRODUCTS OPERATORS**

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The above locomotives are now being rebuilt for prompt delivery.

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- 400 Barrel Butler Portable Steel Cement Bin with Fuller automatic batcher, push button control.

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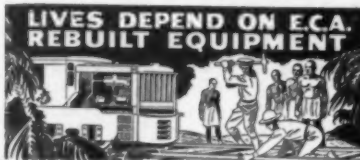
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Portable and stationary, belt with elec. or gas power, sizes from 20 cu. ft. to 1,000 cu. ft.

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- 3—¾ yd. Koehring cranes, Model 201, with 45' boom, Serial Nos. 544, 772 and 848. Gasoline powered.
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- 1—¾ yd. P & H shovel Model No. 304, Serial No. 2385, gasoline powered.
- 1—¾ yd. Northwest No. 2, Serial No. 2988, comb. crane and shovel.
- 1—¾ yd. Erie Model B2 crawler crane, steam powered, Serial No. 4027, with 50' boom and shovel attachment.

CRUSHERS

- 1—No. 4 Champion jaw crusher, size 9x15", Serial No. 2696.
- 1—No. 2 Climax jaw crusher, size 9x16"
- 1—Buchanan jaw crusher, size 10x16"
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- 1—Austin No. 5 gyratory crusher, Ser. No. 2945, opening 12x35½"

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- 85—Electric, ranging from 20 H.P. up to 125 H.P., consisting of triple-drum, double-drum and single-drum, with AC or DC motors, some with attached winches. Following makes: American, Clyde, Lambert, Lidgerwood and National.
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- 1—8" Cataract dredging pump, Ser. No. 175895, cap. 2000 GPM @ 55' head.
- 1—8" Morris cent. sand pump, cap. 60 cu. yds. per hr.

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A large quantity of Jack hammer drills, column tripod and derrick drills.

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- 1—Sullivan drill steel sharpener, Class A No. 556, air operated. Max. 1½" round steel.

EQUIPMENT CORPORATION of AMERICA.

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RELAYING RAILS—Super-quality machine-reconditioned—not ordinary Relayers.
NEW RAILS, Angle and Splice Bars, Bolts, Nuts, Frogs, Switches, Tie Plates, all other Accessories.

Although our tonnages are not as large as heretofore, most sizes usually available. Every effort made to take care of emergency requirements.
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PITTSBURGH NEW YORK CHICAGO

Model 340
Marion Gas Shovel
Convertible Type
1-yard bucket

Penn-Jersey Sand & Gravel Co.
Bridgeport, N. J.

Gyratory Crushers: Allis-Chalmers, 5, 6, 7½, 8, Kennedy Nos. 5198, 25 and 37, Telesmith 26" Gyrosphere.
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Sturtevant No. 1 Ring Roll Crusher, good condition.
2, 3 and 4-yard Koepel & Atlas 36" ga. Dump Cars.
2 McDonald 4½ x 6" Dbl. cyl. vacuum Pumps.
New, Bucyrus Class 14 Steam Dragline 65' boom, Insler ¾ and ½ yard Gas Shovels.
50-B Bucyrus-Erie Steam Shovel, 2-yd.
30-ton Browning std. ga. Steam Locomotive Crane.
100 HP. Fairbanks VA Diesel Engine.
One 125 HP. Venn Severin Diesel Engine. Rbit.
100 HP. Fairbanks VA Diesel Engine.
200 HP. Worthington 440-volt Diesel Gen. 82½.
160' 10 x 10" Curtis Air Compressor.
250 CFM 11 x 10" Sullivan Compressor.
Compressors, Elevators, Screens, Conveyors.
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FOR SALE

Approximately 6,000 12x16 steel cored pallets

CONCRETE & CINDER BLOCKS PRODUCTS CO.

10 Buell Rd. Rochester 11, N. Y.
Genesee 2121

FOR SALE

630 ft. two-stage stationary air compressor, 16-10-18, belt driven, Laidlaw-Dunn-Gordon (Ingersoll-Rand).

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Oklahoma City, Okla.

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ROCK PRODUCTS

FOR IMMEDIATE DELIVERY OF RUBBER PRODUCTS

Conveyor Belting...Transmission
Belting...Elevator Belting...Fire,
Water, Air, Steam, Suction or
Welding Hose, etc.

CALL, WIRE or WRITE
CARLYLE
THE
RUBBER HEADQUARTERS

CARLYLE RUBBER PRODUCTS ARE
NEW, GUARANTEED & LOW PRICED

CONVEYOR BELTING

ABRASIVE RESISTANT COVERS

Width	Ply	Top-Bottom	Covers	Width	Ply	Top-Bottom	Covers
48"	8	1/8"	1/16"	20"	5	1/8"	1/32"
42"	5	1/8"	1/16"	20"	4	1/8"	1/32"
36"	6	1/8"	1/16"	18"	4	1/8"	1/32"
30"	6	1/8"	1/16"	16"	4	1/8"	1/32"
30"	5	1/8"	1/16"	14"	4	1/16"	1/32"
24"	5	1/8"	1/32"	12"	4	1/16"	1/32"
24"	4	1/8"	1/32"				

Inquire For Prices - Mention Size and Lengths

TRANSMISSION BELTING

HEAVY-DUTY FRICTION SURFACE

Width Ply	Width Ply	Width Ply
18" - 6	10" - 6	6" - 5
16" - 6	10" - 5	5" - 5
14" - 6	8" - 6	4" - 5
12" - 6	8" - 5	4" - 4
12" - 5	6" - 6	3" - 4

Inquire For Prices - Mention Size and Lengths

ENDLESS "V" BELTS

"A" WIDTH All Sizes "D" WIDTH All Sizes
"B" WIDTH All Sizes "E" WIDTH All Sizes
"C" WIDTH All Sizes Sold in Matched Sets
Inquire For Prices - Mention Size and Lengths

PROTECT THAT PLANT

FIRE HOSE

APPROVED SPECIFICATION HOSE

Size	Length	Per Length
2 1/2"	50 feet	\$28.00
	25 "	16.00
2"	50 "	23.00
	25 "	13.00
1 1/2"	50 "	20.00
	25 "	11.00

Specify Thread On Couplings

CARLYLE RUBBER CO., INC.

62-66 PARK PLACE

NEW YORK, N. Y.

ELECTRICAL MACHINERY

Motors and Generators, A.C. and D.C.,
for sale at Attractive Prices. Large
Stock. New and Rebuilt. All fully
guaranteed. Send us your Inquiries.

V. M. NUSSBAUM & CO.
FORT WAYNE, IND.

New-RAILS-Relaying

ALL SECTIONS

Also contractors' equipment. "V" shaped and
Western cars, 24 and 36-in. gauge, portable track,
gas lorries, frogs and switches. Attractive prices
quoted. Wire, write or telephone for quotations.

M. K. FRANK JR.

480 Lexington Ave. 810 Park Bldg.
New York, N. Y. Pittsburgh, Pennsylvania

CARS

- 1-Jordan Sreeder Car, all steel.
- 6-20 yd. K. & J., all steel air dump cars, vertical air dump cylinders, airbrakes, etc.

BUCKETS

- 1-Williams 3/4 yd. digging type with teeth.
- 1-Blaw Knox 1 yd. capacity, material handling.

CRANES-OVERHEAD

- 1-8 ton, 4 motor, 36 ft. span, cage control, 330 volt, D.C.
- 1-10 ton, 58 ft. span, 230 volt, D.C.
- 1-25 ton, 58 ft. span, 230 volt, D.C.

CRUSHING PLANT

- 1-Complete Stone Crushing Plant, capacity 850 tons per day. Principal items are:
1-Farrel 24 x 36 Jaw Crusher; 1-Traylor 3', type TT, Reduction Crusher; 1-4 x 12 triple deck Screen; 1-long 34' Belt Conveyor and 1-short 18' Belt Conveyor; complete with steel bins. Plant can be operated with electric motors, all of which electrical equipment is available, or can be operated with two 100 H.P. Diesel motors and one 50 KW Diesel Motor Generator Set. Plant all set up in working position; perfect condition throughout; immediate delivery.

CONCRETE MIXING PLANT

- 1-Complete modern Aggregates Plant including 3 compartment Bins, 400 tons capacity, with scales; 1000 bbl. cement bin with scales, complete with all equipment, with or without three 1 yd. capacity, motor driven, Concrete Mixers, 440 volt, A.C.

SAND & GRAVEL PLANT

- 1-Complete Sand & Gravel Washing, Crushing and Screening Plant, including Belt conveyors, steel bins, electric motors, etc., capacity 200 tons per hour. Plant used only eleven months.

CRUSHER SPECIALS

- Allis-Chalmers 7 x 12
- Reliance 15 x 24
- Universal 15 x 36
- Superior McCully 36" Gyrratory

MINE HOIST

- 1-Vulcan, single drum, 90" dia., 78" face, 750 FPM, 500 H.P., A.C. motor and all control equipment.

LOCOMOTIVES-SALE OR RENT

- 1-Diesel Locomotive, 30 tons capacity, standard gauge, fully equipped, built 1941, used only six months.
- 1-American 41 ton, 4 wheel, saddle tank, standard gauge, cylinders 14 x 22, ARME boiler, 100 lbs. working pressure.
- 1-Lima 80 ton, 6 wheel, Switcher with piston valve, with tender, superheater, coal boiler, 200 lbs. pressure, electric lights, Walschaert valve motion, automatic lubrication; thoroughly modern, excellent condition, immediate delivery.

PUMPS

- 2-Ingersoll-Rand type 4GT, two stage, Centrifugal, capacity 1050 GPM at 1000 ft. head, 350 H.P., 2300 volt, motors, 3 phase, 60 cycle, 3500 RPM, with control equipment, 95% new.

SHOVEL DIPPER

- 1-4 yd. capacity, manganese steel, two piece Dipper, complete with door, bail and teeth, for Bucyrus Erie 120 B Electric Shovel.

DUMP TRUCKS

- 4-Euclid 15 ton capacity, end dump, type 4FD, Cummings 200 H.P. supercharged Diesel motors, 4 rear tires 14 x 24, 2 front tires 12 x 24; New 1941, excellent condition, immediate delivery.

LOG WASHER

- 1-Allis-Chalmers 25 ft. heavy duty, Hutch type, Log Washer, with steel tank, 3/4" plate, with 2 logs with paddles, 33" dia.

JAW CRUSHERS, GYRATORY CRUSHERS,
ROLL CRUSHERS, DRYERS AND KILNS,
HOISTS, CARS, CRANES, SHOVELS, ETC.

We Will Buy Any Modern
Piece of Equipment Anywhere

A. J. O'NEILL

Lansdowne Theatre Building
LANSDOWNE, PA.

Phila. Phone: Madison 8300

Classified Ads Produce Quick Results

FEBRUARY, 1944

125

FOR SALE

SHOVELS—CRANES

Osgood "Chief" 2 yard Shovel, gas
P. & H. 600 Shovel, Crane & Dragline
P. & H. 8-Ton Truck Crane on Mack Truck,
Phen.
Marion No. 7 Electric Shovel
Moore Speedcrane, 15 tons, gas, 65' bin.
Bucyrus Erie Model 160B Electric Tonne Shovel.
Bucyrus Erie 548 Steam Crane, 100' boom.
Buc. Erie 1 yard Steam Crane, excellent.
Buc. Erie Steam Dragline, 6 to 8 yd. bucket.
Northwest Model 104 Shovel-Crane, 1 1/2 yd.
Northwest Model 165 Shovel-Backhoe, 1 yd. Rbit.
Northwest Model 105 Crane, 1 yd. Rebuilt.
Koehring 301, 1/2 yd. Crane and Shovel.
Brownhold 7 1/2 ton Gas Crane.
Ind. Brownhold 16-ton Cat. Crane, gas.

TRACTORS AND MISCELLANEOUS

Caterpillar D6 Tractor with bulldozer.
Caterpillar FD Tractor with 12 yd. Heli Scraper
Wagon.
TD9 Tractor with Shovel Front and Bulldozer.
Allis-Chalmers L Tractor with Baker bulldozer.
Bucket Elevator, vertical, 40', 24' buckets.
Ransome 34E Dual Drum Paver. Excellent.
I.R. two stage, 315 CFM, Portable Compressor.
C-1H. Wagon Drills.
Gardner-Denver Wagon Drills.
Spencer Dust Collectors, equal to new.
Mack Trucks 6HX, Boulder type, 12 yds.
Sterling Trucks 170-C, Boulder type, 12 yds.
International Truck, 12 yds., Boulder type.
Steel stiff-leg Derrick, 35-ton, 100' bin. Excellent.
2-Steel Stiff-leg Derricks, 10 tons, 100' bin.
Hardinge Conical Ball Mill, 4 1/2' x 16'.
Allis-Chalmers Cent. Pump, electric, 3500 GPM.
Worthington 8" cent. Brons Impeller, elec. port.
Dredge Pump 16" F. H. cent., nearly new.
Kennedy Van Housen Revolving Screen 4' x 15',
almost new.

CONCRETE PLANT AND EQUIPMENT

Hottel 85-ton 3 comp. Steel Bin-batcher.
Bex 208 Mixer on skids, almost new.
Bulk Cement Bin, 350 bbls. Complete.
Blaw-Knox 3 comp. 100-ton Aggregate Bin.
B.K. 50-ton, 2 comp. Bin with weigh batcher.
Fuller Kinyon Bulk Cement Unloader, portable.
Fuller C40 Rotary Air Compressor, electric.
Bex Pumperete Model 200 with 150' pipe.
Bex Pumperete Model 190 with pipe.
Bex Pumperete Model 180 with 500' pipe.
Ransome 27E Dual Paver with boom and bucket.

CRUSHERS—CRUSHER PLANTS

Telsmith 20-B steel frame Gyratory, V-belt drive.
Gyratory Crusher: K.V.S. 30, 37-8, 49; 32, 8A,
8H; Traylor 8"; McCully 13", 8", 6".
Allis-Chalmers Anaconda Type, 54"x24".
Jaw: 6x12, 9x16, 10x20, 14x24, 12x30, 13x30,
16x32, 54x84.
Complete Rock Crushing Sand & Gravel Plants.

BUCKETS—STONE SKIPS

Owen 1 yd. Clamshell, rehandling.
Blaw-Knox 1/2 yd. Clam. digging.
Hayward 1/2 yd. Clam. digging.
1/2-yd. Williams Clamshell, digging.
2-1/2-yd. Hais rehandling, Clamshell.
1/2-yd. Hais Clamshell, rehandling.
Erie 1/2 yd. Clamshell, rehandling.
Owen Stone Grapple.
Hayward 1/2-yd. Standard Orange Peel.

LOCOMOTIVES—CARS

American 60-ton, steam, std. ga.
American 50-ton, steam. Saddle Tank.
American 45-ton, steam. Saddle tank.
Davenport 10-ton, std. gauge, gas.
Baldwin Westinghouse 8-ton, 36" ga.
Vulcan 8-ton, std. gauge, gas.
Vulcan 6-ton, gas, 36" gauge.
Purser 13-ton Saddle Tank, Steam 36" ga.
21-Koppel, 4 yd., 36" gauge Dump Cars.
6-40-ton Standard Gauge Flat Cars.

RICHARD P. WALSH CO.

30 CHURCH STREET NEW YORK

FOR SALE

- 1-36 x 42 Farrell Jaw Crusher with
125 H.P. Motor.
- 1-72" diameter x 25' Hercules Revolv-
ing Screen.
- 5-Vibrator Screens.
- 1-Barber-Greene Bucket Loader, Model
82A.
- 1-Barber-Greene Bucket Loader, Model
42.
- 1-Link-Belt Bucket Loader.
- 1-60" Super Scrubber Telsmith.
- 1-I-R 315' Portable Compressor Hessel-
man Diesel.
- 2-Well Drills.
- 1-Cooper Bessmer Diesel.
- 1-24" x 60" Belt Elevator.

BLUE BALL MACHINE WORKS
BLUE BALL, PENNSYLVANIA

MISCELLANEOUS

Davenport standard gauge 10-ton locomotive
Whitcomb 36" gauge 8-ton locomotive.
Mercury 1 1/2-ton 30" gauge Edison battery loco-
motive.
Sprague Electric 4-ton direct current car puller
Car puller, cargo type, 440v 25 cycle, 15 hp motor
V-shape end dump, 36" gauge steel car.
Flat cars for 18" and 24" gauge.
Morris 8" sand pump with 15 hp motor
Electric and gasoline driven water pumps
C-P air compressor, 529', 100 hp slip ring motor
Schramm 4-cyl. air compressor 60 hp AC motor
New York Air Brake 4B steam duplex air comp.
2 circ. Meyers Stone Saws, 60" & 48" x 12".
3 Lincoln planers, 36" & 42" x 12".
Dredge 20"x30", 3 steel pontoons 14'x14'x4'.

CRUSHERS, ROLLS, MILLS

Jaw crushers 18"x32", two 11"x25", 9"x16"
Traylor 11" gyratory "BULLDOG" crusher on
wheels
Robins double roll coal crusher, 24"x30"
Stevenson single roll crusher, 24"x30"
Single roll crusher, with knife, 24"x24"
Simplex Coal Pulverizer, type 33A
American Standard Disintegrator, 24"x18"x30"
Sturtevant No. 9 Rotary Fine Crusher
Williams No. 2 "SEMI-VULCANITE" hammer
mills
Williams No. 2 "REGULAR" hammer mill.

SCREENS AND WASHERS

Niagara double deck vibrating screen, 2'x10'
Universal double deck vibrating screens, 4'x36"
"JIGGER" triple deck vibrating screens, 2'x5'
Hammer vibrating screens, 1 & 2 deck, 3'x5' &
4'x5'

Tyler generators for Hammer screens
New "TONCAP" framed screens, 3'x5' & 4'x5'
Revolving screens, 4'x18", 4'x16", 5'x20"
Sand drag washer, 36"x30"

BUCKET ELEVATORS

35' continuous elevator, 14" buckets on belt
35' continuous elevator, 30" buckets on 2 strands
chain
35' enclosed elevator with 6" buckets
30' centrifugal elevator, 16" buckets on chain
40' centrifugal elevator, 18" buckets on belt
52' centrifugal elevator, new 20" buckets 9-ply belt
Used 6-ply 20" elevator belt
Gears, sprockets, elevating and driving chain
New K2 and Couplings for C1625 and C188
chains

CONVEYORS

36"x175' trough belt conveyor
14"x100' trough belt conveyor
Belt idlers and conveyor pulleys
400' of 6 ply 36" conveyor belt, 1/2" top
500' of 6 ply 14" conveyor belt, 1/2" top
185' of 42" 8 ply conveyor belt, 1/2" top
12" and 15" single strand flight conveyors
Robins Automatic belt trippers for 14" belt
Hand propelled trippers for 24" and 30" belt.
Jeffrey Conveyor, 47"x100", with flat surface
Jeffrey Foundry Mold conveyor, 47"x150"
Jeffrey Standard Steel Apron Feeder, 24"x60"

G. A. UNVERZAGT & SONS

136 Colt Street Irvington, N. J.

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and Boiler Tubes
Wood and Steel Tanks
Buildings, Valves and Fittings

JOS. GREENSPON'S SON PIPE CO.
Natl. Stock Yds., St. Clair Co., Ill.

FOR SALE

STONE BUCKETS

7' Wide—10' Long—28" High
Each Bucket has 4 eyelets and one
open end. Buckets are reinforced with
60 lb. Rails and weigh 3300 lbs. each.

APEX IRON AND METAL CO.

2204 S. Laflin Street Chicago, Ill.

1 1/2 yard Northwest Shovel, model
105 with four cylinder Wisconsin
Engine.

1/2 yard Marion Shovel, model 120
with International Engine.

1/2 yard P. & H. Shovel, model 206
with four cyl. Waukesha Motor.

1/2 yard Byers Bearcat 1/2 swing,
model 27R with Hercules Motor.

5 yd. Austin Western Scraper Wagon
with pneumatic tires and hoist to
fit caterpillar tractor.

3 complete portable stone crushing
plants consisting of No. 5 Cham-
pion Crusher, 18" belt elevator, 36"
revolving screen and stone bin all
on steel wheels and completely
portable. Used to crush stone for
roads in only one military camp.

FRANK A. KREMSER & SONS, INC.

R. D. No. 2, Reading, Pa.

Phone: Leesport 180 Night Phone: Reading 42321

FOR SALE

SHOVELS, DRAGLINES, LE TOURNEAU WAGONS, DRILLS

52-B 2 1/2 yd. Bucyrus-Erie Electric
Shovel.

K-48 Link-Belt Dragline-Hesselman Oil
Engine, 2 yard bucket.

45-B Bucyrus-Erie Diesel Dragline, 65'
boom, 2 yard bucket.

43-B Bucyrus-Erie 1 1/2 yd. Shovel, gas
engine.

Model 6 Northwest Dragline-Crane, 60'
boom.

Osgood 1 1/2 yard Shovel, Buda Diesel
engine.

Model 1500 Speed-Crane Dragline-Crane,
60' boom.

4-14 yard 10-W Wagons with Tournou-
pull.

Model C Tractors with Cummins Diesel
Engines.

2-Model 44 Loomis "Clipper" Full
Crawler Well Drills.

ALL THESE MACHINES ARE IN
VERY FINE CONDITION.

Frank Swabb Equipment Co.

HAZLETON, PA.

Telephone 3906

FOR SALE

One (1) 36x6 Farrell Jaw Crusher shop No. 11819
in good usable condition—location Morris
Plains, N. J. For particulars address inquiries
to C. C. Spencer, Purchase Manager.

MORRIS COUNTY CRUSHED STONE CO.

10 Park Place Morristown, N. J.

PULVERIZERS

One (1)—Sturtevant Vertical Emery Mill, new
emery stones recently. Price \$675.00
Four (4)—Kent Maxcon Ring Roll Mills, in
good running condition, may be seen in operation.
Price, each, \$1675.00
One (1)—Bradley 3 Roll Pulverizer. Price, \$1150.00

WHITEROCK QUARRIES

Belleville, Penna.

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P. O. Box 4933,
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**EQUIPMENT
CORPORATION
AMERICA.**

WE SERVE 4 WAYS

BUY

REBUILD

SELL

RENT

4

EQUIPMENT WANTED

WANTED

Wisconsin B-2 Gasoline
Engine
or
Waukesha 6-SRKR Gasoline Engine
either new or used
for 301 Koehring

Portage-Manley Sand Co.
PORTAGE, WISCONSIN

WANTED

18", 24", 30" Belt Conveyor
Also Conveyor Idlers and Bucket
Elevators
Address Box B-51, Rock Products, 309
West Jackson Blvd., Chicago 6, Ill.

WANTED

Dorco Twelve Food Sand Washer—
Advise Price, Location and Condition.

LOGAN ENGINEERING CO.
216 Croger Building
LEESBURG, FLORIDA

MACHINERY WANTED

1—9' Dry Pan
1—110 cu. yard steel bin
1—63 cu. yard steel bin
1—140' Belt Conveyor
1—50' Elevator, 8" buckets
1—60 H. P. Boiler
Write ROCK PRODUCTS Box B-47

WANTED TO BUY

36 inch belt conveyor 220 feet
long. Box 52, Rock Products, 309
W. Jackson Blvd., Chicago, Ill.

CEMENT COLORS

MINERAL COLORS
for
CEMENT-PLASTER-STUCCO
CONCRETE PRODUCTS
"FINE BECAUSE OF THEIR FINENESS"
Ask us for samples and recommendations
BLUE RIDGE TALC CO., INC.
HENRY, VIRGINIA

CONSULTING ENGINEERS

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305 W. Seventh St.
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Cement Engineer
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GONE TO WAR



CORE DRILLING
ANYWHERE
We look into the earth
PENNSYLVANIA
DRILLING COMPANY
Pittsburgh, Pa.

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AGRICULTURAL
LIME PLANT

Consisting of
56" x 40' Cummer Rotary
Dryer, Stoker Fired
Raymond Pulverizer

Air Classifier, Collector and
Bag Room

All in excellent condition and
on original foundation.

THE
WILLIAM W. NEWELL
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P. O. BOX 477, NASHVILLE 2, TENN.

A Real Business Opportunity

An old established vault, septic tank
and concrete products plant. Nine-
room concrete residence, large ware-
house and work sheds; two acres
ground on railroad and two paved
streets in town of ten thousand pop-
ulation and fastest growing indus-
trial, farming and resort section of
Central Florida. Practically new
truck; molds, stock and equipment
all ready to step in and do business
for \$15,000.00 cash. Do not write un-
less you mean business for photos
and details to Box 50, Rock Prod-
ucts, 309 W. Jackson Blvd., Chicago,
Ill.

BUSINESS OPPORTUNITIES—
Continued

FOR SALE

Approximately 1000 acres of mountain land
containing unlimited quantity of high grade GAN-
ISTER ROCK. Analysis shows it to be 98%
silica, situate Juniata and Mifflin Counties,
Pennsylvania.

INQUIRE OF H. C. BURKETT
Lewistown, Penna.

GOING BUSINESS FOR SALE

Gravel Plant, Ready-Mixed Con-
crete Plant, Asphalt Plant, and Con-
tracting Business, well established
in Connecticut community of 75,000.
Please address inquiries to Box No.
B-42, care of Rock Products.

POSITIONS WANTED

18 YEARS' EXPERIENCE as Supt. of
all types of Crush Rock, Wash
Gravel, Sand and Ready mix plants.
Worked Quarry Rock, Gravel Deposits
and River dredging. Worked crews up
to 200 men. At present employed as
Supt. of large Gravel and Cr. Plant but
desire new connection. Excellent refer-
ences furnished. 38 years old, married
with child 12. Have worked outside
U.S.A. Willing to go anywhere in or
out of U.S.A. Write Box B-48, Rock
Products, 309 W. Jackson Blvd., Chi-
cago, Illinois.

By former chief chemist and plant oper-
ator with more than 20 years in cement
manufacture. Write Box No. B-35, Rock
Products, 309 W. Jackson Blvd., Chicago,
Illinois.

POSITIONS VACANT

CONCRETE PRODUCTS
MEN WANTED

An outstanding opportunity is waiting for
qualified Supt. of Production and Sales
Mgr. Both openings require a very reason-
able investment. If desirable and qualified,
an official position will be offered. Must
be experienced in latest methods of pro-
duction and sales. Mfg. brick, joists,
blocks, roof and floor tile, burial vaults;
made from sand and gravel, also light
weight aggregate. Handle ready mix.
Concrete. Developing plans for mfg. of
light weight aggregate from local clay and
shale.

Give full qualifications and approx. extent
of investment. Replies answered promptly
and confidentially.

Write Box B-41, care of Rock Products,
309 W. Jackson Blvd.

WANTED—Experienced cement plant
chemist and analyst for Pacific Coast
plant. State educational background,
draft status and references. Write Box
No. B-37, Rock Products, 309 W. Jack-
son Blvd., Chicago, Illinois.

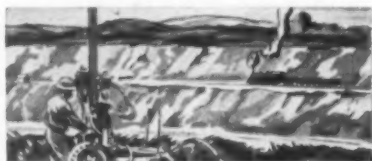
Back the Attack—Bonds Buy Bombs



I hopped the dinkey for 100 cubic yards

"We'll ride the dinkey," said Smith, as he stepped on the track.

It was May, 1917. We had just entered the war, and everything was *rush*. Mines were hiring men and begging equipment. Cordeau was taking hold, and I was trying to cover mines and quarries in one-night stands. That morning, Smith and I were on the way to his iron pit.



Used three-inch wagon drill . . .

Hopping a dinkey engine is one trick I wouldn't try today. You straddled the rail, facing the locomotive as it came charging down. At the right moment you lifted your foot and landed on the front step, smack against the pilot—with the wind knocked out of you. If you missed . . .

We didn't miss. We hung on and rode the two miles to the pit—one of the prettiest layouts I'd ever seen. Smith was getting an excellent grade of iron ore, cutting back on benches and scooping it up with shovels alongside his narrow gauge right-of-way. He pointed ahead to where a whole section of track was covered

with overburden of rock and earth, around which a gang was working with jack hammers.

"That's your big blast," he said, disgustedly. "Dumped a mountain of big rock on my railroad and set me back three days' production!"

"Got a blueprint?" I asked.

"Blueprint? Hell, no!" he snorted.

"We just went ahead and sank our holes—fifty of 'em in two rows along the top. Used three-inch wagon drill about 25 feet deep and spaced 9 feet apart."

"How did you connect up?"

"We ran a line of Cordeau all along each row," said Smith, "and put an electric cap at the end of each line. Shot 'em simultaneously with a battery—and look at it!"

"Yes,—I see," I said. "We advocate *one* trunk line and *one* cap for a layout like this. Connect the Cordeau so as to shoot the front row *first*, and then the back row. Cordeau

is plenty fast, but this interval gives time enough to shoot the front row a split second ahead of the back row, which relieves the burden and results in better fragmentation.

"Try Cordeau again with a *real* Cordeau hook-up and I think you'll make a lot of money."

That was a long time ago. His dinkey engine is somewhere in Mexico now, and he's hauling ore with Diesels on standard gauge. His pit looks like the Grand Canyon! And every yard since 1917 has been shot with our detonating fuse: Cordeau up to 1938, when he shifted to the new improved Primacord.



THE ENSIGN-BICKFORD COMPANY
Simsbury, Connecticut



PRIMACORD·BICKFORD

Detonating Fuse

Also Makers of Ensign-Bickford Safety Fuse—since 1836

Heaping Loads AT HIGH SPEED...



OSCILLATING FRONT AXLE ... UNIVERSAL ACTION HITCH

—on Koehring Trail-Dump absorbs road shocks, allows free movement of body for high speed travel over rough haul roads. Trail-Dump can climb 21" furrows without frame distortion. Free, universal action at upper end of hitch yoke allows wagon and tongue to move in any direction without body twisting strains. These important advantages permit high speed travel without penalty of twisting strains, excessive repair costs. High speed travel increases loads per hour, yardage per hour.

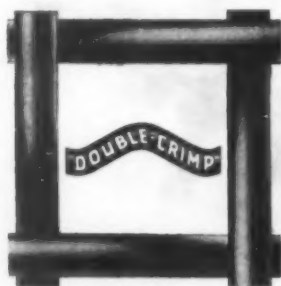
KOEHRING COMPANY
MILWAUKEE 10, WISCONSIN

DEPEND ON YOUR KOEHRING DISTRIBUTOR to help you keep your equipment operating. Care for your Koehring equipment NOW, so it will serve you tomorrow. Koehring distributors have genuine Koehring parts. Koehring parts warehouses are at your service.



HEAVY-DUTY CONSTRUCTION EQUIPMENT

FEBRUARY, 1944



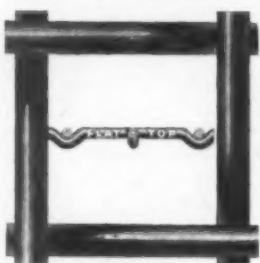
Double-Crimp



Arch-Crimp



Intermediate-Crimp



Flat-Top

"Perfect" WEAVES

Arch-Crimp	Rek-Tang
Coiled	Selvage-Edge
Double-Crimp	Straight-Warp
Double-Fill	Stranded
Dutch	Sta-Tru
Flat-Top	Triple-Warp
Intermediate-Crimp	Twisted
	Twisted-Fill
	Twisted-Warp

"The Perfect"

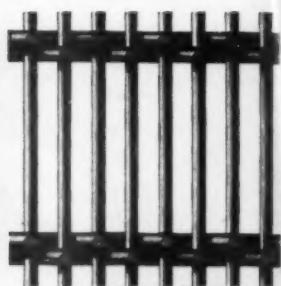
Wire Cloths and Screens

OF SUPER-LOY STEEL

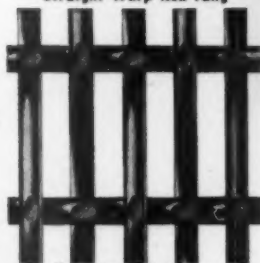
GALVANIZED STEEL
STAINLESS STEEL
NICKEL-CHROME STEEL
PHOSPHOR BRONZE

BRASS
COPPER
MONEL
NICKEL
ALUMINUM

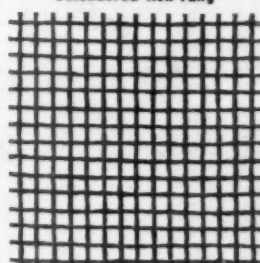
ANY SPECIAL METAL FOR
ANY SERVICE



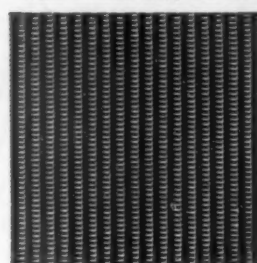
Straight Warp Rek-Tang



Calendered Rek-Tang



Triple Twisted Warp and Fill



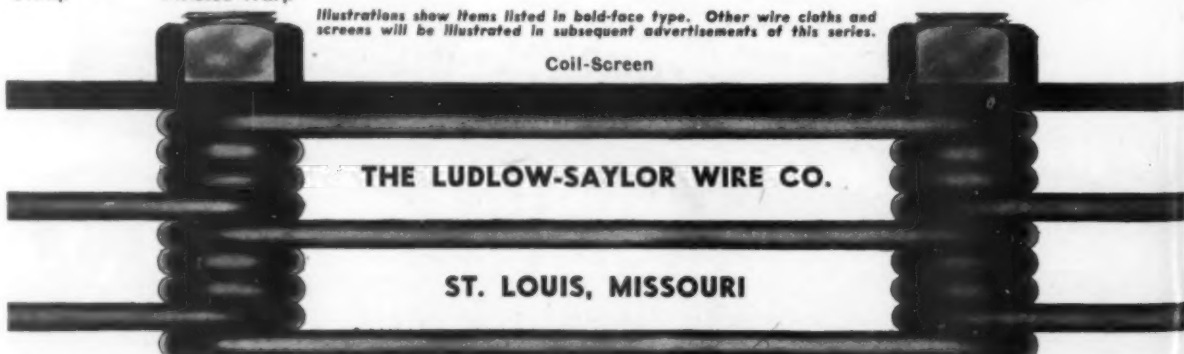
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Coils	Ribbons
Cones	Rings
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Discs	Sections
Forms	Segments
Leaves	Strips
Lengths	Templates

Illustrations show items listed in bold-face type. Other wire cloths and screens will be illustrated in subsequent advertisements of this series.

Coil-Screen



THE LUDLOW-SAYLOR WIRE CO.

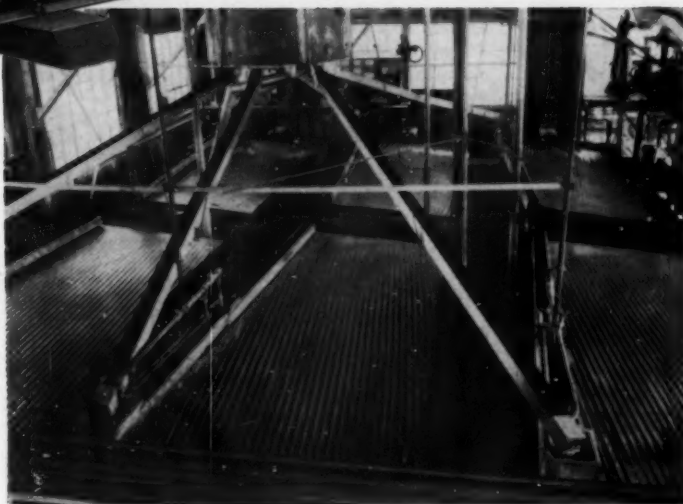
ST. LOUIS, MISSOURI

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2. Before and after flotation for recovery of coarse mineral not readily susceptible to flotation.
3. As pilot tables to check efficiency of each flotation unit, and for recovery where flotation is not satisfactorily high.
4. For two or more separations (or grading up) from flotation concentrates, previous tables concentration, or from original table feed.
5. For concentrating a middlings feed producing a high grade concentrate and middlings for regrinding.



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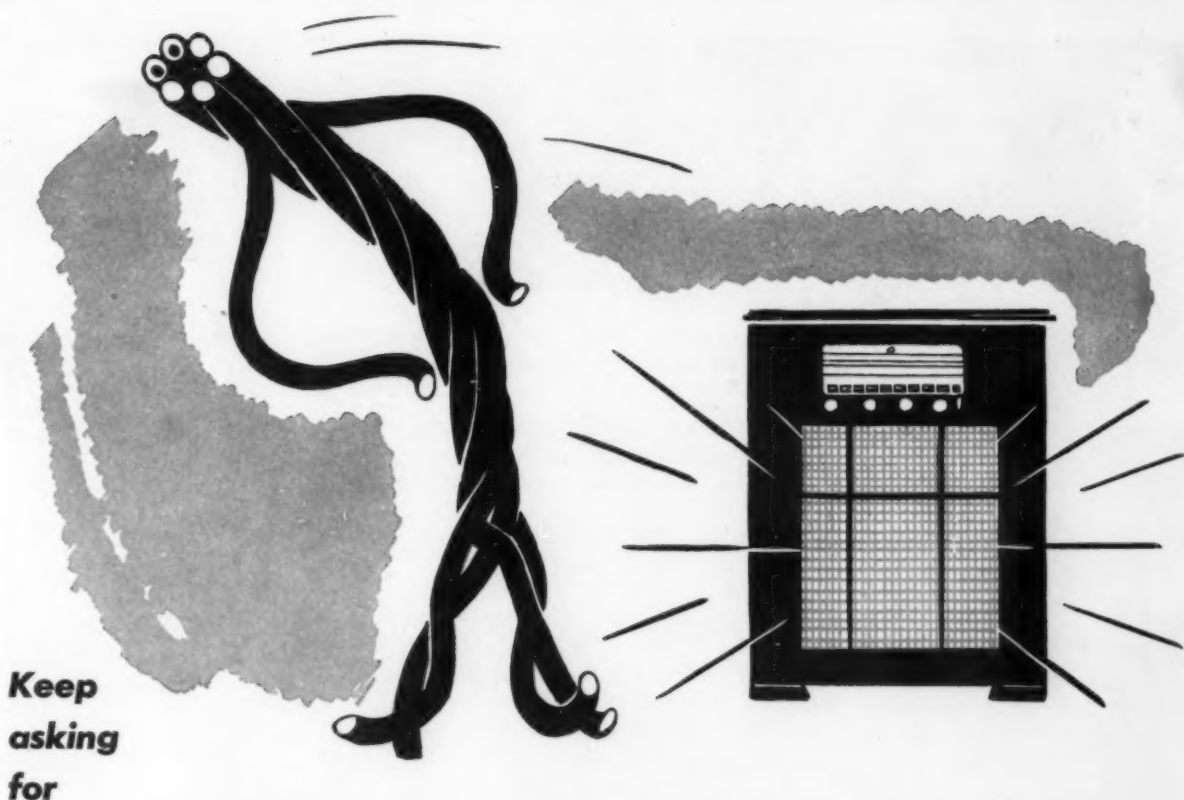
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bending fatigue!**

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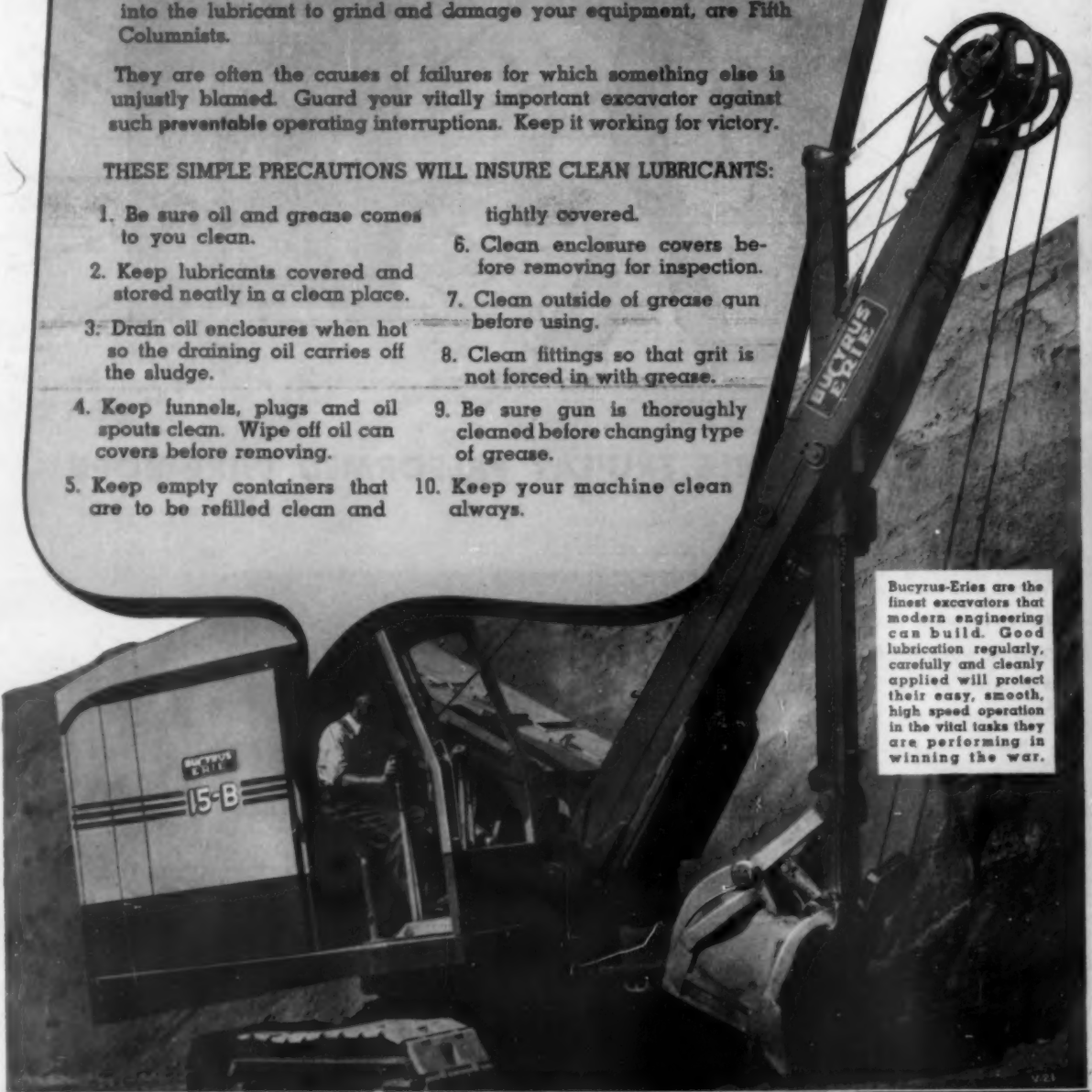
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Dirt and grit and similar abrasives which are allowed to creep into the lubricant to grind and damage your equipment, are Fifth Columnists.

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4. Keep funnels, plugs and oil spouts clean. Wipe off oil can covers before removing.
5. Keep empty containers that are to be refilled clean and tightly covered.
6. Clean enclosure covers before removing for inspection.
7. Clean outside of grease gun before using.
8. Clean fittings so that grit is not forced in with grease.
9. Be sure gun is thoroughly cleaned before changing type of grease.
10. Keep your machine clean always.



Bucyrus-Eries are the finest excavators that modern engineering can build. Good lubrication regularly, carefully and cleanly applied will protect their easy, smooth, high speed operation in the vital tasks they are performing in winning the war.



Bucyrus-Erie

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